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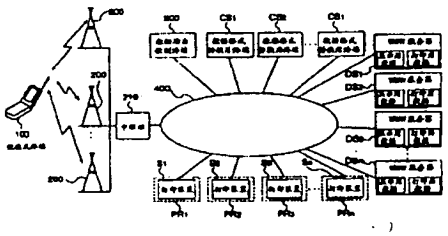
[54]发明名称 数据输出控制装置及便携式终端

[57]摘要

本发明以提供一种便于在因特网上获取详细信息的数据输出控 制装置及便携式终端为目的。数据输出控制终端 300 通过因特网 400 与用户持有的便携式终端 100 及设置在各地的打印装置 PR_1 – PR_n，WWW 服务器 DS_1 – DS_m进行可通信连接，从便携式终端 100 接收包括由便携 式终端 100 生成的便携式终端位置数据的数据打印请求，根据其包含 在数据打印请求中的便携式终端位置数据搜索存储装置 62 的打印装 置位置数据，以携式终端 100 的位置为基准选择在距离上或时间上认 为是最近的打印装置 PR，向其选出的打印装置 PR 输送与数据打印请 求有关的数据。



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权 利 要 求 书

1. 一种数据输出控制装置，其通过网络与用户随身携带并发出数据输出请求的可携带便携式终端和分散设置在各地并输出数据的多个输出终端进行可通信连接，用于接受来自上述便携式终端的数据输出请求，并将该数据输出请求相关的数据输出到上述输出终端，其特征在于：包括

存储装置－用于按上述的每个输出终端存储为特定该输出终端的设置场所的输出终端位置数据；

选择装置－用于根据为特定上述便携式终端位置的便携式终端位置数据来检索上述存储装置的输出终端位置数据，并以便携式终端的位置为基准，选择在距离上或时间上认为最接近的输出终端；

输出装置－用于向通过上述选择装置所选出的输出终端输出上述数据输出请求有关的数据，

并且，其根据来自上述便携式终端所连接的基站的该便携式终端的位置相关的位置数据生成上述便携式终端位置数据。

2. 一种数据输出控制装置，其通过网络与用户随身携带并发出数据输出请求的可携带便携式终端和分散设置在各地并输出数据的多个输出终端进行可通信连接，用于接受来自上述便携式终端的数据输出请求，并将该数据输出请求相关的数据输出到上述输出终端，其特征在于：包括

存储装置－用于按上述的每个输出终端存储为特定该输出终端的设置场所的输出终端位置数据；

选择装置－用于根据为特定上述便携式终端位置的便携式终端位置数据来检索上述存储装置的输出终端位置数据，并以便携式终端的位置为基准，选择在距离上或时间上认为最接近的输出终端；

输出装置－用于向通过上述选择装置所选出的输出终端输出上述数据输出请求有关的数据，

并且，其采用由上述便携式终端所生成的上述便携式终端位置数据。

3. 一种利用在权利要求 2 记载的数据输出控制装置的便携式终端，其特征在于：包括

测位装置－用于测定该终端的位置；

位置数据生成装置－用于根据由上述测位装置所测定的位置生成上述便携式终端位置数据；

数据输出请求发信装置－用于将包括上述位置数据生成装置所生成的便携式终端位置数据的上述数据输出请求发送到上述数据输出控制装置上。

4. 一种利用在权利要求 2 记载的数据输出控制装置的便携式终端，其特征在于：包括

位置数据获取装置－用于从该终端所连接的基站获取有关该终端位置的位置数据；

位置数据生成装置－用于根据由上述位置数据获取装置所获取的位置数据生成上述便携式终端位置数据；

数据输出请求发信装置－用于将包括上述位置数据生成装置所生成的便携式终端位置数据的上述数据输出请求发送到上述数据输出控制装置上。

说　明　书

数据输出控制装置及便携式终端

技术领域

本发明涉及到一种可通过网络与用户携带的便携式终端和设置在各处的多个打印装置进行可通信连接，从便携式终端接收数据打印请求并向某个打印装置输出其与数据打印请求相关的数据的装置和终端，本发明尤其涉及到一种可以很方便地从网络上获取详细信息的数据输出控制装置及便携式终端。

现有技术

近年来，利用由 NTT 移动通信网络公司(NTTDoCoMo)等公司提供的 i-方式(注册商标)产品可以在任何地方很方便地在因特网上获取信息。

然而虽然通过这种便携式终端可以较方便地在任何地方获取因特网信息，但是由于出于便携式终端小型化和节能化的考虑而使显示装置的结构比较简单，所以所显示出来的信息与在普通个人计算机上显示的信息相比难免过于简缩，因而难以提供能令用户十分满意的信息。

由此可以在保持便携式终端小型化与节能化的同时，提出一种为获得详细信息，将便携式终端与打印装置组合起来，使信息的大概在便携式终端上显示，而详细信息则通过打印装置打印出来的设想。但是这种将便携式终端与打印装置组合起来的构想还有许多必须解决的技术问题。

比如，由于打印装置较大，不便随便携式终端一同移动，所以在打印详细信息时，通常考虑利用设置在家庭及办公室内的打印装置。但是利用这种固定的专用打印装置，难以在任何地方都能方便地获取信息，所以为了能达到这一目的，需要把打印装置的尺寸缩小到能便于携带的程度，或者设法能利用任意的打印装置。对于前者，在现阶段还有很大的技术困难，因而是不现实的。对于后者，由于所有的打印装置都需要配备专用驱动器，因而便携式终端内必须设置所有的想利用的打印装置的驱动器，这也不具备现实性。

本发明的目的是着眼于现有技术的这一尚未得到解决的课题，推

出一种能较方便地获取因特网上的详细信息的数据输出控制装置和便携式终端.

发明内容

为达到上述目的，可提出本发明权利要求 1 和 2 记载的数据输出控制装置及权利要求 3 和 4 记载的便携式终端. 以下结合图 1 对本发明权利要求 1 及 2 记载的数据输出控制装置及权利要求 3 及 4 记载的便携式终端的结构作以说明. 图 1 为本发明权利要求 1 及 2 记载的数据输出控制装置及权利要求 3 及 4 记载的便携式终端的结构概念图.

如图 1 所示，本发明权利要求 1 记载的数据输出控制装置 10 通过网络与发出数据输出请求的用户携带的便携式终端 20 及设置在各地的输出数据的多个输出终端 21 进行可通信连接，接收来自便携式终端 20 的数据输出请求，向上述输出终端 21 输送与其数据输出请求有关的数据，它包括以下部分：用于存储为上述各输出终端 21 指定该输出终端 21 设置位置的输出终端位置数据的存储装置 11、根据用于指定上述便携式终端 20 的位置的便携式终端位置数据搜索上述存储装置 11 的输出终端位置数据，并以便携式终端 20 的位置为基准，选择在距离上或时间上认为是最接近的输出终端 21 的选择装置 12、向通过选择装置 12 所选出的输出终端 21 输送与上述数据输出请求有关的数据的输出装置 13，从而根据关于来自于上述便携式终端 20 相连接的基站 22 的该便携式终端 20 的位置的位置数据生成上述便携式终端位置数据.

在这种结构下，在接收到来自便携式终端 20 的数据输出请求后，根据来自基站 22 的位置数据生成便携式终端位置数据，通过所生成的便携式终端位置数据对存储装置 11 的输出终端位置数据进行搜索，以便携式终端 20 的位置为基准，通过选择装置 12 选出在距离或时间上认为是最接近的输出终端 21，通过输出装置 13 向被选出的输出终端 21 输送与数据输出请求有关的数据. 接下来通过输出终端 21 将该数据输送出去.

这里，只要选择了以便携式终端 20 的位置为基准的在距离或时间上认为是最接近的输出终端 21，则选择装置 12 便可以是任何结构，可以选择以便携式终端 20 的位置为基准的在距离或时间上认为

是最接近的某一输出终端 21，也可以选择以便携式终端 20 的位置为基准的在距离或时间上认为是最接近的多个输出终端 21．在后一种情况下，通过某些方法，比如通过用户的指定缩小选择范围，最后从多个输出终端 21 中选出一个．以下内容在权利要求 2 记载的数据输出控制装置 10 中也同样如此．

而且，输出终端 21 只要是输出数据，可为任意结构，比如可以具有用于显示数据的显示装置、将数据以语音等形式输出的语音输出装置或者打印数据的打印装置．以下内容在权利要求 2 记载的数据输出控制装置 10 中也同样如此．

而且，虽然便携式终端位置数据是基于来自基站 22 的位置数据而生成的，但更具体一些说，只要是由基站 22 测定便携式终端 20 的位置，并基于测定位置所生成即可．

而且，举例说，与数据输出请求有关的数据可以由便携式终端 20 接收，也可以从该装置 10 及便携式终端 20 之外的其它地方获取．在后者情况下，为具体一些说明，可以列举如下结构．即再设置一通过网络与存储数据的数据存储终端进行可通信连接，从上述数据存储终端获得与上述数据输出请求有关的数据的获取装置，上述输出装置 13 向由上述选择装置 12 选出的输出终端 21 输送通过上述获取装置获取的数据．以下内容在权利要求 2 记载的数据输出控制装置 10 中也同样如此．

在这种结构下，从便携式终端 20 接收到数据输出请求后，通过获取装置从数据存储终端得到与数据输出请求有关的数据，并通过输出装置 13 将所得到的数据输送到由选择装置 12 所选出的输出终端 21 上．

此外，如图 1 所示，本发明权利要求 2 记载的数据输出控制装置 10 通过网络与发出数据输出请求的用户携带的可携带便携式终端 20 及设置在各地的输出数据的多个输出终端 21 进行可通信连接，接收来自便携式终端 20 的数据输出请求，向上述输出终端 21 输送其与数据输出请求有关的数据，它包括以下部分：用于存储为上述各输出终端 21 指定该输出终端 21 的设置位置的输出终端位置数据的存储装置 11、根据用于指定上述便携式终端 20 的位置的便携式终端位置数据搜索上述存储装置 11 的输出终端位置数据，并以上述便携式终端 20

的位置为基准，选择在距离或时间上认为最接近的输出终端 21 的选择装置 12、向通过选择装置 12 所选出的输出终端 21 输送与上述数据输出请求有关的数据的输出装置 13，作为上述便携式终端位置数据，采用由上述便携式终端 20 生成的内容。

在这种结构下，在接收到来自便携式终端 20 的数据输出请求后，通过选择装置 12，根据由便携式终端 20 所生成的便携式终端位置数据对存储装置 11 的输出终端位置数据进行搜索，并以携式终端 20 的位置为基准，选出在距离或时间上认为是最接近的输出终端 21，通过输出装置 13 向被选出的输出终端 21 输送与数据输出请求有关的数据。接下来通过输出终端 21 将该数据输送出去。

这里，便携式终端数据由便携式终端 20 生成，虽然可以由便携式终端 20 以任何方式生成，但具体地说例如是由便携式终端 20 测出其便携式终端 20 的位置，并根据所测定的位置来生成，由便携式终端 20 从与之相连的基站 22 获得与便携式终端 20 的位置有关的位置数据，再根据所得到的位置数据来生成。

另一方面，如图 1 所示，本发明权利要求 3 记载的便携式终端 20 利用权利要求 2 记载的数据输出控制装置 10，它包括对该终端的位置进行测定的测位装置、基于由上述测位装置所测定的位置生成上述便携式终端位置数据的位置数据生成装置、向上述数据输出控制装置 10 发送含有由上述位置数据生成装置生成的便携式终端位置数据在内的上述数据输出请求的数据输出请求发信装置。

在这种结构下，由测位装置测定便携式终端 20 的位置，由位置数据生成装置生成基于所测定的位置的便携式终端位置数据，由数据输出请求发信装置向数据输出控制装置 10 发送含有所生成的便携式终端位置数据在内的数据输出请求。

这里，测位装置在能保证测定便携式终端 20 的位置的前题下可以为任何结构，比如，可以利用 GPS 根据从外部获取的信息对位置进行测定，也可以利用陀螺仪及加速度计通过在内部生成的信息对位置进行测定。

另外，如图 1 所示，本发明权利要求 4 记载的便携式终端 20 利用权利要求 2 记载的数据输出控制装置 10，它包括用于从与该终端相连的基站 22 获取与该终端位置有关的位置数据的位置数据获取装

置、基于用上述位置数据获取装置所获取的位置数据生成上述便携式终端位置数据的位置数据生成装置、向上述数据输出控制装置 10 发送含有由上述位置数据生成装置所生成的便携式终端位置数据在内的上述数据输出请求的数据输出请求发信装置.

在这种结构下，通过测位装置从基站 22 获取位置数据，通过位置数据生成装置，根据所得到的位置数据生成便携式终端位置数据，通过数据输出请求发信装置向数据输出控制装置 10 发送含有所生成的便携式终端位置数据在内的数据输出请求.

附图说明

图 1 为表示本发明权利要求 1 及 2 记载的数据输出控制装置和权利要求 3 及 4 记载的便携式终端的结构概念图.

图 2 为表示本发明数据输出控制装置及便携式终端所适用的网络系统结构框图.

图 3 为表示便携式终端 100 的结构框图.

图 4 为表示数据打印请求处理的流程图.

图 5 为表示数据输出控制终端 300 的结构框图.

图 6 为表示数据输出控制处理的流程图.

实施方式

以下结合图面对本发明实施方式作以说明. 图 2 至图 6 所示为本发明数据输出控制装置及便携式终端的实施方式示意图.

本实施方式关于下述内容应用了本发明的数据输出控制装置及便携式终端，即其内容为如图 2 所示，基于经因特网(Internet)400 与用户随身携带的便携式电话等的便携式终端 100 及分别设置在分散在各地的多个店铺 S_1～S_n 上的打印装置 PR_1～PR_n 进行可通信连接的数据输出控制终端 300，服务提供人提供下述服务，即按用户的数据打印请求，从 WWW(万维网)服务器 DS_1～DS_m 之一获取与数据打印请求有关的数据，并将其输出给打印装置 PR_1～PR_n 之一. 另外为了便于理解本发明，只图示了一个便携式终端 100，但实际上多个不同型号的便携式终端 100 可以与因特网 400 相连.

首先，参照图 2 对应用本发明数据输出控制装置和便携式终端的网络系统的结构进行说明. 图 2 系应用本发明便携式终端及数据输出控制装置的网络系统结构示意框图.

如图 2 所示，在因特网 400 上连接着：在便携式终端 100 与因特网 400 之间中继通信的中继站 210、打印用数据的打印装置 PR_1～PR_n、存储数据的 WWW 服务器 DS_1～DS_m、从 WWW 服务器 DS_1～DS_m 之一获取与数据打印请求有关的数据并输出给打印装置 PR_1～PR_n 之一的数据输出控制终端 300、将数据输出控制终端 300 所获取的数据转换为可由打印装置 PR_1～PR_n 打印的数据的数据格式转换用终端 CS_1～CS_1.

与便携式终端 100 进行无线通信的多个基站 200 与中继站 210 相连，以便当便携式终端 100 与因特网 400 相连时，中继站 210 替代便携式终端 100 成为因特网 400 上的终端，并将经基站 200 接收的来自于便携式终端 100 的数据通过因特网 400 向目标终端传送，同时还通过基站 200 将因特网 400 上的目标终端的数据传送给便携式终端 100. 另外，便携式终端 100 至少与三个基站 200 通信，中继站 210 测定来自于便携式终端 100 的电波到达基站 200 的时间的各个时间差，并基于测得的时间差来测定便携式终端 100 的位置.

WWW服务器 DS_1～DS_m 的结构包括存储为由便携式终端 100 显示的显示用数据和为由打印装置 PR_1～PR_n 打印的对应于显示用数据的打印用数据的存储单元，及根据来自于诸如与因特网 400 相连的中继站 210 或数据输出控制终端 300 之类的终端的请求，向其终端传送存储单元的数据的请求处理单元.

请求处理单元是通过未图示的CPU执行存储在外部存储装置上的程序来实现的功能，当有来自于外部终端(便携式终端 100、数据输出控制终端 300 等)的数据传送请求时，传送存储单元上的显示用数据或打印用数据. 传送显示用数据和打印用数据的哪一方由数据传送请求所的 URL 判定. 另外存储单元作为打印用数据，存储了文本数据、静止图像数据、声音数据、MPEG 类动画数据、VRML 类 3D 图像数据或 JAVA 等的程序数据等的各种文件或 HTML(Hyper Text Markup Language)超文本标志语言)文件.

数据格式转换用终端 CS_1～CS_1 是执行数据格式转换处理以便将数据输出控制终端 300 获取的数据转换成可由打印装置 PR_1～PR_n 打印的数据的终端，从而根据因特网 400 的传送负荷或数据格式转换用终端 CS 的处理负荷选择一个或多个数据格式转换用终端 CS_1～CS_1，并以所

选择的数据格式转换用终端 CS 进行数据格式转换处理. 具体一点是按因特网 400 的传送负荷或数据格式转换用终端 CS 的处理负荷小的顺序，在数据格式转换用终端 CS_1 ~ CS_1 中选择数据格式转换处理所需的一个或多个.

执行数据格式转换处理的数据格式转换用终端 CS 从数据输出控制终端 300 接收数据格式转换请求及成为转换目标的数据、并通过数据格式转换处理，将数据输出控制终端 300 所获取的具有所定数据格式的数据转换为可由打印装置 PR_1 ~ PR_n 中对应的打印装置打印的数据，并将转换的数据传送给数据输出控制终端 300.

例如，在以数据格式转换用终端 CS_1 ~ CS_3 执行格式转换处理中，数据格式转换用终端 CS_1 将数据输出控制终端 300 所获取的具有所定数据格式 A(例如 HTML 形式)的数据转换为可为打印装置 PR_1 ~ PR_5 打印的数据、数据格式转换用终端 CS_2 将数据输出控制终端 300 所获取的具有所定数据格式 B(例如 JPEG 格式)的数据转换为可由打印装置 PR_6 ~ PR_{10} 打印的数据及数据格式转换用终端 CS_3 将数据输出控制终端 300 所获取的具有所定数据格式 C(例如 WORD(注册商标)文档格式)的数据转换为可由打印装置 PR_{11} ~ PR_{15} 打印的数据等. 此时，很显然打印装置 PR_1 ~ PR_5 成为所定数据格式 A 的数据专用打印装置，打印装置 PR_6 ~ PR_{10} 成为所定数据格式 B 的数据专用打印装置，打印装置 PR_{11} ~ PR_{15} 成为所定数据格式 C 的数据专用打印装置.

而且，执行数据格式转换处理的数据格式转换用终端 CS 还可在转换数据输出控制终端 300 所获取的数据的同时，按便携式终端 100 的每一机种，根据其显示功能(可显示行数、显示分辨率等)，生成可由便携式终端 100 显示的预览数据，其预览数据系数据输出控制终端 300 所获取的数据被打印装置 PR 打印时的概念图像，并将生成的预览数据传送给数据输出控制装置 300.

据此，数据输出控制装置 300 将从数据格式转换请求及 WWW 服务器 DS 所获取的数据传送给对应于欲打印数据打印请求有关的数据的打印装置 PR 的数据格式转换用终端 CS，并作为其响应，接收可由欲实施打印的打印装置 PR 打印的数据和预览数据.

以下参照图 3 对便携式终端 100 结构进行说明. 图 3 是便携式终端 100 的结构示意框图.

如图 3 所示，便携式终端 100 的结构包括：基于控制程序控制运算及整个系统的 CPU30、预先在所定区域存储 CPU30 的控制程序等的 ROM32、存储从 ROM32 等读取的数据或在 CPU30 运算过程中所需的运算结果的 RAM34、将存储在 RAM34 的指定区域的数据转换为图像信号并输出给 LCD(液晶显示器)44 的 LCDC(液晶显示控制器)36、对外部装置进行数据的输入和输出的 I/F38，它们相互之间由为传送数据的信号线即总线 39 进行可交换数据连接。

在 I/F38 上，作为外部装置，连接着作为人机接口由多个键可输入数据的键盘 40、与基站 200 进行无线通信的收发信控制装置 42、基于图像信号显示图像的 LCD44 及测定当前地点的位置的测位装置 46.

除 CPU30 的控制程序外，ROM32 还存储为验证利用数据输出控制终端 300 所提供的打印服务的用户是否是合法用户的验证数据.

作为指定区域，RMB34 具有存储 LCD44 显示的显示用数据的 VRAM35，VRAM35 可独立地由 CPU30 及 LCDC36 访问.

LCDC36 以所定周期从前列地址顺序地读取 VRAM35 所存储的显示用数据，并将读取的显示用数据转换为图像信号输出给 LCD44.

测位装置 46 利用 GPS(全球定位系统)等系统，并从传送示出当前时间的时间信号的轨道卫星接收时间信号，以便基于这些时间信号所示的时间偏差及各轨道卫星的轨道表示的测定当前地点的位置.

CPU30 由微处理单元 MPU 等组成，用以启动 ROM32 的所定区域所存储的所定程序，并按其程序执行图 4 的流程图所示的数据打印请求处理。图 4 系表示数据打印请求处理的流程图.

数据打印请求处理系通过向数据输出控制终端 300 发出数据打印请求，请求由打印装置 PR_1 ~ PR_n 之一打印用户指定的 WWW 服务器 DS 的数据而作的处理，并当在 CPU30 上执行此处理时，流程首先按图 4 转入步骤 S100.

在步骤 S100 中，通过用户的键盘 40 的输入对是否有数据打印请求进行判断，并在作出已经有数据打印请求的判断时(是: Yes)，流程转入步骤 102，由测位装置 46 测定当前地点的位置，流程转入步骤 S104，从键盘 40 输入与打印有关的各种信息。用户输入以下与此打印有关的各种信息，例如，唯一指定存储成为打印目标的打印用数

据的 WWW 服务器 DS 在因特网 400 上的位置的 URL、希望提供输出数据的大致的场所即提供希望场所、打印纸尺寸、彩色还是单色、打印精度或打印速度等的打印装置 PR 的打印规格、成为打印目标的打印用数据的数据格式或在直接指定打印装置PR时识别其打印装置PR的打印装置 ID. 这些输入项都不是必须项，可根据用户需要有选择地输入。然而，在未对 WWW 服务器 DS 的 URL 作特殊规定时，自动输入用户目前以便携式终端 100 浏览的 WWW 服务器的 URL.

接着，流程转入步骤 S106，基于与已经输入的打印有关的各种信息生成数据打印请求所含数据. 也就是说，生成数据打印请求所含的数据有：把在步骤 S102 测得的当前地点的位置作为指定其当前地点的位置的便携式终端位置数据；把 WWW 服务器 DS 的 URL 作为表示其 URL 的打印目标存储位置数据；在已经输入了提供希望区域时，表示其提供希望区域的提供希望区域数据；在已经输入了打印装置 PR 的打印规格时，表示其打印规格的打印规格数据；在已经输入了数据格式时，表示其数据格式的打印格式数据；在已经输入了打印装置 PR 的打印装置 ID 时，表示其打印装置 ID 的打印装置识别数据.

接着，流程转入步骤 S108，向数据输出控制终端 300 传送数据打印请求，流程转入 S110，作为其响应，从数据输出控制终端 300 接收认为是用户接受输出数据的提供的最适当的一些打印装置 PR 的候选被列表的打印装置候选数据，并基于接收到的打印装置候选数据在 LCD44 上显示被列表的打印装置 PR 候选，而后流程转入步骤 S112.

在步骤 S112 中，对在 LCD44 显示的打印装置 PR 候选中有无希望提供数据输出的打印装置 PR 进行判断，并通过从键盘 40 输入对在 LCD44 显示的打印装置 PR 的候选之一的选择作出了有希望提供输出数据的打印装置 PR 存在的判断时(是: Yes)，流程转入步骤 S114.

在步骤 S114 中，向数据输出控制终端 300 传送表示已经确定打印装置 PR 的判定信号，流程转入步骤 S116，从数据输出控制终端 300 接收与关于确定的打印装置 PR 的详细情况(打印装置 PR 的设置位置、打印规格等)，作为对判定信号传送的第一个响应，基于接收到的打印装置信息在 LCD44 上显示与打印装置 PR 有关的详细信息，而后流程转入步骤 S118.

在步骤 118 中，作为对传送判定信号的第 2 个响应，从数据输出

控制终端300接收表示从便携式终端100的所在部位到所确定的打印装置PR的设置部位对用户进行导向的导向信息（道路信息，地图信息等）的导向数据，作为对传送判定信号的第2个响应，基于接收到的导向数据，在LCD44上显示导向信息，流程转入步骤S120，从数据输出控制终端300接收预览数据，作为对传送判定信号的第三个响应，基于接收到的预览数据，在LCD44上显示由所确定的打印装置PR所作打印时的概念图像，而后流程转入步骤S122。

在步骤S122中，用显示在LCD44上的概念图像，作出欲打印的打印用数据是否正确的判断，并通过从键盘40输入由LCD44上显示的概念图像作出没有错误的选择，判断为由LCD44上显示的概念图像没有错误时，流程转入S124. 这时，当预览数据是由多组数据构成时，可以特别指定其中希望打印的部分。

在步骤S124中，向数据输出控制终端300发送数据打印执行请求，流程转入步骤S126，向数据输出控制终端300发送ROM32的验证数据，流程转入步骤S128，从数据输出控制终端300接收信息作为其响应，在LCD44上显示接收到的信息，流程转入步骤S130，对是否已经从数据输出控制终端300接收到表示数据打印已结束的结束信号作出判断，并在作出已接收到结束信号的判断时(是: Yes)，处理流程结束，在作出相反判断时(否: No)，重复步骤S128直到接收到结束信号。

另一方面，在步骤S122中，通过从键盘40输入一项有关在LCD44上显示的概念图像是不正确的选择，作出在LCD44上显示的概念图像不正确的判断时（否: No），流程转入步骤S132，向数据输出控制终端300传送中断数据打印请求的中断信号，而后处理流程结束。

另一方面，在步骤S112中，在通过从键盘40输入一项有关在LCD44上显示的打印装置PR候选中不存在用户所需的打印装置PR的选择，作出用户所需提供数据输出的打印装置PR不存在的判断时(否: No)，步骤转入S134，向数据输出控制终端300传送重试信号，即对认为是接受输出数据的提供的最佳打印装置PR进行再搜索的请求，而后流程转入S104.

另一方面，在步骤S100中，如果判断为没有来自用户的数据打印请求时（否: No），则在步骤S100中保持待机状态，直到出现数

据打印请求.

下面，参照图 5 对数据输出控制终端 300 的结构加以说明. 图 5 是数据输出控制终端 300 的结构示意框图.

数据输出控制终端 300，获取来自于便携式终端 100 的数据打印请求有关的数据、选择用以打印数据的打印装置 PR_1 ~ PR_n 之一，向所选择的打印装置 PR 输出所获取的数据，并如图 5 所示，其结构包括：基于控制程序控制运算及整个系统的 CPU50、预先在所定区域存储 CPU50 的控制程序等的 ROM52、存储从 ROM52 等读取的数据或在 CPU50 运算过程所需的运算结果的 RAM54、将存储在 RAM54 的指定区域的数据转换为图像信号并输出的 CRTC56、用作对外部装置输入输出的 I/F58，它们彼此由作为数据传送信号线的总线 59 进行数据可交换性连接.

作为外部装置与 I/F58 连接的有作为人机接口可进行数据输入的键盘或鼠标等组成的输入装置 60、以文件形式存储数据和表格等的存储装置 62、基于图像信号显示图像的显示装置 64、与因特网 400 相连的信号线.

作为指定区域，RAM54 设有存储用于在显示装置 64 上显示的显示用数据的 VRAM55，VRAM55 可由 CPU50 和 CRTC56 独立访问.

CRTC56 按所定周期从前列地址顺序读取 VRAM55 上存储的显示用数据、而且将已读取的显示用数据转换成图像信号并输出给显示装置 64.

存储装置 62 存储当选择应打印数据的打印装置 PR_1 ~ PR_n 中之一时所需的与打印装置 PR 有关的打印装置信息。每个打印装置 PR_1 ~ PR_n 的打印装置信息由登录以下各项组成：指定其打印装置 PR 的设置部位的打印装置位置数据、表示与该打印装置 PR 相对应的数据格式转换用终端 CS 可转换的数据格式(即该打印装置 PR 可打印的数据格式)的打印格式、表示该打印装置 PR 的打印规格的打印规格数据、表示该打印装置 ID 的打印装置识别数据.

CPU50 由微处理单元 MPU 等组成，用于启动在 ROM52 的所定区域存储的所定程序，并按程序执行图 6 的流程图所示的数据输出控制处理. 图 6 系表示数据输出控制处理的流程图.

数据输出控制处理从 WWW 服务器 DS 获取与来自于便携式终端 100

的数据打印请求有关的打印用数据，选择认为是最适于便携式终端100用户接受输出数据的提出的某一打印装置PR，并向其所选择的打印装置PR输出获取的打印用数据，当在CPU50上执行时，如图6所示，流程首先转入步骤S200.

在步骤S200中，对是否已经从便携式终端100接收到数据打印请求作出判断，并在作出已经从便携式终端100接收到数据打印请求的判断时(是：Yes)，流程转入步骤S202，获取在所接收的数据打印请求中所包含的数据(至少含有便携式终端位置数据及打印目标存储位置数据)，流程转入步骤S204，选择认为是最适于便携式终端100的用户接受输出数据的提供的某一打印装置PR.

在此步骤S204中，具体地说，基于获取的便携式终端位置数据搜索存储装置62的打印装置位置数据，并以便携式终端100的位置为基准选择认为在距离或时间上最近的数个打印装置PR. 在提供希望区域数据包含在数据打印请求中时，基于提供希望区域数据搜索存储装置62的打印装置位置数据，并在由提供希望区域数据所指定的区域上选择所有打印装置PR. 在打印规格数据包含在数据打印请求中时，基于获取的打印规格数据搜索存储装置62的打印规格数据，并选择与该打印规格数据相匹配的所有打印装置PR.

另外，在打印格式数据包含在数据打印请求中时，基于获取的打印格式数据搜索存储装置62的打印格式数据，并选择与该打印格式数据相匹配的所有打印装置PR. 在打印装置识别数据包含在数据打印请求中时，基于获取的打印装置识别数据搜索存储装置62的打印装置识别数据，并选择与其打印装置识别数据相匹配的打印装置PR. 另外，在这些数据共同包含在数据打印请求中时，基于每个数据缩小选择范围. 只是在包含提供希望区域数据时，由便携式终端位置数据指定的位置不包含在由提供希望区域数据指定的区域内时，不根据便携式终端位置数据缩小选择范围，并且，在包含打印装置识别数据时，不根据其它数据进行选择范围的缩小.

在接下来的步骤S204中，生成对在步骤S202所选择的打印装置PR进行列表的打印装置候选数据，并向便携式终端100传送所生成的打印装置候选数据，而后流程转入步骤S208.

在步骤208中，作出是否已经从便携式终端100接收到判定信号

的判断，并在作出已经从便携式终端 100 接收到判定信号的判断时(是: Yes)，流程转入步骤 S210，从获取的打印目标存储位置数据 URL 所指定的 WWW 服务器 DS 获取打印用数据，流程转入步骤 S211，向可转换其打印用数据的并与已确定的打印装置 PR 相对应的确定的数据格式转换用终端 CS 传送获取的打印用数据，并从其数据格式转换用终端 CS 获取确定的在打印装置 PR 可打印的数据及预览数据作为其响应，而后流程转入步骤 S212.

在步骤 S212 中，从存储装置 62 读取有关确定了的打印装置 PR 的打印装置信息，向便携式终端 100 传送读取的打印装置信息，流程转入步骤 S214，生成有关确定了的打印装置 PR 的导向数据，并向便携式终端 100 传送所生成的导向数据，流程转入步骤 S216，向便携式终端 100 传送预览数据，而后流程转入步骤 S218.

在步骤 S218 中，作出是否已经从便携式终端 100 接收到数据打印执行请求的判断，并在作出已经接收到数据打印请求的判断时(是: Yes)，流程转入步骤 S220，并从便携式终端 100 接收验证数据，流程转入步骤 S222，基于接收到的验证数据进行验证处理，以便验证便携式终端 100 的用户是否是利用数据输出控制终端 300 提供的打印服务的合法用户，流程转入步骤 S224.

在步骤 S224 中，经过步骤 S222 的验证处理，作出有关便携式终端 100 的用户是否是合法用户的判断，在作出用户是合法用户的判断时(是: Yes)，流程转入步骤 S226，并向该打印装置 PR 传送可在所确定的打印装置 PR 上打印的数据，流程转入 S228，并执行根据便携式终端 100 对数据输出控制终端 300 所提供的打印服务的利用结果进行计费的计费处理.

在本步骤 S228 中，具体地讲，在计算便携式终端 100 的电话帐单(例如每分钟的电话费)的同时，作为便携式终端 100 的利用结果，对例如所获取的打印用数据的容量、在打印装置 PR 的打印页数、打印装置 PR 的打印规格，参照作为打印服务提供的对等价格的确定服务利用费的费用计算规定表，计算出根据便携式终端 100 的利用结果的服务利用费，向电话帐单中添加所计算的服务利用费，并将所添加的总额作为向便携式终端 100 的用户的请求金额进行存储.

接着流程转入步骤 S230，向便携式终端 100 传送表示由步骤 S228

的计费处理所计算的服务利用费的计费信息，流程转入步骤 S232，向便携式终端 100 传送数据的打印已经结束的结束信息，流程转入步骤 S234，向便携式终端 100 传送结束信号，而后处理流程结束。

另一方面，在步骤 224，作出便携式终端 100 的用户是非法用户的判断时(否：No)，流程转入步骤 S236，向便携式终端 100 传送用户是非法用户的信息，而后处理流程结束。

另一方面，在步骤 S218，作出尚未从便携式终端 100 接收到数据打印执行请求的判断时(否：No)，流程转入步骤 S238，作出有关是否已经从便携式终端 100 接收到中断信号的判断，并在作出已经接收到中断信号的判断时(是：Yes)，处理流程结束，而在作出相反判断时(否：No)，流程转入 S218。

另一方面，在步骤 S208，作出尚未从便携式终端 100 接收到判定信号的判断时(否：No)，流程转入步骤 S240，作出有关是否已经从便携式终端 100 接收到重试信号的判断，并在作出已经接收到重试信号的判断时(是：Yes)，流程转入步骤 S200，但在作出相反判断时(否：No)，流程转入步骤 S208。

另一方面，在经步骤 S200，作出尚未从便携式终端 100 接收到数据打印请求的判断时(否：No)，直到接收到数据打印请求为止流程停留在步骤 S200。

以下对上述实施方式动作作以说明。

首先，当采用由数据输出控制终端 300 提供的打印服务的合法用户操作自己所持有的便携式终端 100 时，比如访问 WWW 服务器 DS_1 时，其 WWW 服务器 DS_1 的显示用数据将显示在 LCD44 上。这时，以用户欲打印在 LCD44 上显示的数据的详细数据为例进行说明。

用户为了打印目标数据，首先，从键盘 40 输入数据打印请求。

在便携式终端 100 上，一旦输入数据打印请求，经步骤 S100、S102 以测位装置 46 通过 CPU30 测定当前地点的位置，并在 LCD44 上显示与打印有关的各种信息的输入请求。这里，如果用户通过指定当前浏览的 WWW 服务器 DS_1 的 URL 作为与打印有关的各种信息进行输入时，经步骤 S104～S108，基于所输入的与打印有关的各种信息，作为包含在数据打印请求中的数据，生成便携式终端位置数据和打印目标存储位置数据，并向数据输出控制终端 300 传送数据打印请求。

在数据输出控制终端 300 上，一旦接收到数据打印请求，由 CPU50 经步骤 S200～S204 获取包含在接收到的数据打印请求中的数据(便携式终端位置数据和打印目标存储位置数据)，基于获取的便携式终端位置数据，搜索存储装置 62 的打印装置位置数据，并以便携式终端 100 的位置为基准选择认为在距离或时间上最近的数个打印装置 PR。此时，比如选择了打印装置 PR_1～PR_6，则经步骤 S206 生成对打印装置 PR_1～PR_5 列表的打印装置候选数据，并向便携式终端 100 传送所生成的打印装置候选数据。

在便携式终端 100 上，一旦收到打印装置候选数据，经步骤 S110，便基于接收到的打印装置候选数据在 LCD44 上显示打印装置 PR_1～PR_5 的列表。这里，在用户从键盘 40 输入打印装置 PR_1 的选择时，经步骤 S112、S114 向数据输出控制终端 300 传送表示已经确定了打印装置 PR_1 的判定信号。

在数据输出控制终端 300 上，一旦接收到判定信号，经步骤 S208～S211 从所获取的打印目标存储位置数据的 URL 指定的 WWW 服务器 DS_1 获取打印用数据，向可转换其打印用数据并与所确定的打印装置 PR_1 相对应的数据格式转换用终端 CS(例如数据格式转换用终端 CS_1)传送所获取的打印用数据，作为其响应，从数据格式转换用终端 CS_1 获取与在所确定的打印装置 PR_1 上可打印的数据及预览数据。之后，经步骤 S212～S216，从存储装置 62 读取有关所确定的打印装置 PR_1 的打印装置信息，向便携式终端 100 传送读取的打印装置信息，生成所确定的有关打印装置 PR_1 的导向数据，向便携式终端 100 传送生成的导向数据，并向便携式终端 100 传送预览数据。

在便携式终端 100 上，一旦接收到打印装置信息、导向数据及预览数据，经步骤 S116～S120，便基于接收到的打印装置信息，在 LCD44 上显示与打印装置 PR 有关的详细信息，基于接收到的导向数据，在 LCD44 上显示从便携式终端 100 的所在部位到打印装置 PR_1 所设置的设置部位的导向信息，基于接收到的预览数据，在 LCD44 上显示由所确定的打印装置 PR_1 打印时的概念图像。这里，在用户从键盘 40 输入表明欲打印的打印用数据在 LCD44 上显示的概念图像信息是正确的选择时，经步骤 S122～S126，向数据输出控制终端 300 传送数据打印执行请求和 ROM32 的验证数据。

在数据输出控制终端 300 上，一旦接收到数据打印执行请求及验证数据，便经步骤 S218 至 S222，基于已接收的验证数据进行验证处理。这里，用户是利用数据输出控制终端 300 提供的打印服务的合法用户，因此，可经步骤 S224 至 S234 向打印装置 PR_1 传送可由所确定的打印装置 PR_1 打印的数据，并进行计费处理，向便携式终端 100 传送计费信息、结束信息和结束信号。

在便携式终端 100 上，一旦接收到计费信息、结束信息和结束信号，便经重复步骤 S128、S130 后在 LCD44 上显示计费信息和结束信息。另一方面，在打印装置 PR_1 上，一旦接收到可用打印装置 PR_1 打印的数据，便基于接收到的数据完成打印。

在显示结束信息后，用户边察看在 LCD44 上显示的导向信息，边进入设置有打印装置 PR_1 的 S_1 号店，并接收由打印装置 PR_1 打印的数据。向便携式终端 100 的电话帐单增加以所提供的打印服务价格计的服务利用费并清算。

对此，服务提供者可以通过向电话帐单增加以所提供的打印服务价格计的服务利用费并向用户请求清算，由此收取提供服务的等价费用。

另外，在用户作为与打印有关的各种信息输入了希望提供输出数据的大致区域即提供希望区域时，向数据输出控制终端 300 发送表示其提供希望区域的提供希望区域数据，在数据输出控制终端 300 上，基于获取的提供希望区域数据搜索存储装置 62 的打印装置位置数据，并选择在由提供希望区域数据指定的区域上的所有打印装置 PR.

例如，在用户输入“涉谷”作为提供希望区域时，在便携式终端 100 的 LCD44 上显示所有设置在涉谷周围的打印装置 PR.

另外，在用户作为与打印有关的各种信息而输入了打印装置 PR 的打印规格时，向数据输出控制终端 300 发送其表示打印规格的打印规格数据，并在数据输出控制终端 300 上，基于获取的打印规格数据搜索存储装置 62 的打印规格数据，并选择与该打印规格数据匹配的所有打印装置 PR.

例如，在用户作为打印规格输入“颜色”时，在便携式终端 100 的 LCD44 上显示可打印彩色数据的所有打印装置 PR.

另外，在用户作为与打印有关的各种信息而输入了数据格式时，向

数据输出控制终端 300 传送其表示数据格式的打印格式数据，并在数据输出控制终端 300 上，基于获取的打印格式数据搜索存储装置 62 的打印格式数据，并选择其与打印格式数据相当的所有打印装置 PR.

例如，在用户作为数据格式输入“HTML 形式”时，在便携式终端 100 的 LCD44 上显示与可转换 HTML 形式的数据的数据格式转换用终端 CS 相对应的所有打印装置 PR.

另外，在用户为直接指定打印装置 PR 而作为与打印有关的各种信息输入了打印装置 PR 的打印装置 ID 时，向数据输出控制终端 300 发送表示打印装置 ID 的打印装置识别数据，在数据输出控制终端 300 上，基于获取的打印装置识别数据搜索存储装置 62 的打印装置识别数据，并选择与其打印装置识别数据一致的打印装置 PR.

例如，在用户作为打印装置 ID 输入了“0001”时，在便携式终端 100 的 LCD44 上显示打印装置 ID 为“0001”的打印装置 PR. 此时，在不存在打印装置 ID 为“0001”的打印装置 PR 时，什么打印装置都不显示.

另外，在用户作为与打印有关的各种信息而综合输入希望打印区域、打印规格及数据格式时，向数据输出控制终端 300 传送表示上述每项的数据，并在数据输出控制终端 300 上，基于多组获取数据缩小选择范围，并选择所有相当的打印装置 PR.

例如，在用户作为希望打印区域、打印规格及数据格式输入“涉谷”、“颜色”、“HTML 形式”时，在便携式终端 100 的 LCD44 上显示与可转换 HTML 形式数据的数据格式转换用终端 CS 相对应的打印装置 PR 中，位于“涉谷”周围且可打印彩色数据的所有打印装置 PR.

另外，在用户不是利用数据输出控制终端 300 提供的打印服务的合法用户的情况下，在概念图像显示在 LCD44 上时，即使从键盘 40 输入在 LCD44 上显示的概念图像作为所要打印的打印用数据是正确的选择，也不会由打印装置 PR_1 打印目标的数据.

这样，对于本实施方式，数据输出控制终端 300 接收由便携式终端 100 生成的含有便携式终端位置数据在内的数据打印请求，基于其数据打印请求所含有的便携式终端位置数据搜索存储装置 62 的打印装置位置数据，并以便携式终端 100 的位置为基准选择认为在距离或时间上最近的打印装置 PR，向其选择出的打印装置 PR 输出数据打印请求有关的数据.

据此，由于在以便携式终端 100 的位置为基准认为在距离或时间上最近的打印装置 PR 上打印与数据打印请求相关的数据，所以与以往相比，用户便于接收所提供的输出数据，可以很方便地从因特网 400 上获取详细信息。而且，由于在便携式终端 100 上生成便携式终端位置数据，所以与在数据输出控制终端 300 上生成便携式终端位置数据相比，数据输出控制终端 300 上的处理负荷被减轻。特别在从多个便携式终端 100 同时访问的情况下，处理负荷的减轻效果尤其明显，因而可以降低到接收提供的输出数据为止所需的时间大幅度延迟的可能性。因此，服务提供者可以为用户提供更令人满意的信息服务，同时可提供更舒适的打印环境的打印服务。

另外，对于本实施方式，数据控制终端 300 基于数据打印请求所含有的提供希望区域数据搜索存储装置 62 的打印装置位置数据，并在由其提供希望区域数据所指定的区域上选择打印装置 PR。

据此，在用户希望输出数据的提供的大致区域即提供希望区域的打印装置 PR 上打印与数据打印请求有关的数据，因此可以接受符合用户目的的输出数据的提供，从而可以更容易地接收因特网 400 上的详细信息。因此，服务提供者可以向用户提供更加满意的信息服务。

另外，对于本实施方式，在由数据打印请求所含有的由提供希望区域数据所指定的区域上不存在由便携式终端位置数据所指定的位置时，数据输出控制终端 300 不搜索便携式终端位置数据。

据此，在用户输入提供希望区域时，以提供希望区域数据的搜索比以便携式终端位置数据的搜索具有优先权，并在提供希望区域的打印装置 PR 上打印与数据打印请求有关的数据，用户可以赋予其目的的优先权接受输出数据的提供，从而可以更容易地接收因特网 400 上的详细信息。因此，服务提供者可以向用户提供更加满意的信息服务。

另外，对于本实施方式，数据输出控制终端 300 基于数据打印请求所含有的打印格式数据搜索存储装置 62 的打印格式数据，并选择与其打印格式数据匹配的打印装置 PR。

据此，在可用由用户指定的数据格式打印的打印装置 PR 上打印与数据打印请求有关的数据，因此用户可以根据其目的接受输出数据的提供，从而可以更容易地接收因特网 400 上的详细信息。因此，用户提供者可以向用户提供更加满意的信息服务。

另外，对于本实施方式，数据输出控制终端 300 基于数据打印请求所含有的打印规格数据搜索存储装置 62 的打印规格数据，并选择与其打印规格数据匹配的打印装置 PR.

据此，在可以用户指定的打印规格打印的打印装置 PR 上打印与数据打印请求有关的数据，由此用户可以根据其目的接受输出数据的提供，从而可以更容易地接收因特网 400 上的详细信息．因此，服务提供者可以向用户提供更加满意的信息服务.

另外，对于本实施方式，数据控制终端 300 只基于数据打印请求所含有的打印装置识别数据搜索存储装置 62 的打印装置识别数据，并选择与其打印装置识别数据一致的打印装置 PR.

据此，在由用户唯一指定的打印装置 PR 上打印与数据打印请求有关的数据，由此用户可以根据其目的接受输出数据的提供，从而可以更容易地接收因特网 400 上的详细信息．因此，服务提供者可以向用户提供更加满意的信息服务.

另外，对于本实施方式，数据输出控制终端 300 向便携式终端 100 输出与所选择的打印装置 PR 相对应的打印装置信息.

据此，通过通知用户与提供输出数据的打印装置 PR 有关的信息，可防止用户错误地打印数据．因此，服务提供者可向用户提供更加满意的信息服务.

另外，对于本实施方式，数据输出控制终端 300 从 WWW 服务器 DS 获取与数据打印请求有关的数据.

据此，在打印详细信息时，由数据输出控制终端 300 处理打印用数据及可在打印装置 PR 上打印的数据，从而不必为便携式终端 100 增设内存并减少了便携式终端 100 上的处理负荷．另外，无需向便携式终端 100 中读入数据，从而降低了通信时间及到接受输出数据的提供为止所需的时间．因此，不论便携式终端 100 的功能如何，服务提供者都可以向用户提供打印环境优越的打印服务.

另外，对于本实施方式，数据输出控制终端 300 基于用于指定便携式终端 100 位置的便携式终端位置数据选择多个打印装置 PR 之一.

据此，由于在与便携式终端 100 的位置相关的打印装置 PR 上打印用数据，从而例如可以便携式终端 100 的位置为基准选择认为在距离或时间上最近的打印装置 PR，用户可更容易地接受输出数据的提

供，并更容易地获取因特网 400 上的详细信息．因此，服务提供者可以向用户提供更加满意的信息服务．

另外，对于本实施方式，数据输出控制终端 300 从由数据打印请求所含有的打印目标存储位置数据的 URL 指定的 WWW 服务器 DS 获取数据．

因此，可以获取与因特网 400 相连的所有 WWW 服务器 DS 上的详细信息．据此，服务提供者可以向用户提供更加满意的信息服务．

另外，对于本实施方式，数据输出控制终端 300 作为与数据打印请求有关的数据从 WWW 服务器 DS 获取打印用数据．

据此，由于在便携式终端 100 上显示大致信息并在打印装置 PR 上打印详细信息，因此用便携式终端 100 可获取因特网 400 上的详细信息，而且也可实现优越的显示处理．据此，服务提供者可以向用户提供更加满意的信息服务，同时可提供更加优越的成为打印环境的打印服务．

另外，对于本实施方式，数据输出控制终端 300 向便携式终端 100 传送以数据格式转换用终端 CS 生成的预览数据，并作为对预览数据输出的响应，在从便携式终端 100 接收到数据打印执行请求时，向打印装置 PR 输出与数据打印请求有关的数据．

据此，通过在提供输出数据前通知用户其预览数据，由此可防止用户错误地打印数据．因此，服务提供者可以向用户提供更加满意的信息服务．

而且，对于本实施方式，数据输出控制终端 300 根据便携式终端 100 利用数据输出控制终端 300 所提供的打印服务的结果进行计费．

因此，可以所提供的打印服务价格确切计算服务利用费，同时无须在用户每次接受打印服务提供时都逐一计算打印服务费．据此，服务提供者可以方便地处理服务费结算等日常业务，而且由于向用户明确显示服务利用费，从而可以提供更加满意的信息服务．

而且，在本实施方式下，数据输出控制终端 300 可以通过把服务利用费加到通话费中的形式收取与提供打印服务的对等费用．

据此，用户支付服务利用费更加方便，并且服务提供者可以方便安全地回收服务利用费，及更为方便地处理服务利用费结算等事务手续．

而且，对于本实施方式，数据输出控制终端 300 向打印装置 PR 输出用数据格式转换用终端 CS 转换的数据．

因此，即使在设置新打印装置 PR 时，也只需改变服务提供者一方的数据格式转换用终端 CS 的有关其新打印装置 PR 的设置，而在用户一方无需进行任何设置的改变就可以利用其新打印装置 PR. 据此，便于服务提供者在增设新打印装置 PR 时进行设置操作，而且可进一步向用户提供更加满意的信息服务.

另外，对于本实施方式，数据输出控制终端 300 向便携式终端 100 传送表示导向信息的导向数据，以便介绍用户从便携式终端 100 的所在部位到所确定的打印装置 PR 的设置部位.

因此，用户可以根据导向信息而到打印装置 PR 的设置部位，从而可以比较确切地获取输出数据. 据此，服务提供者可以向用户提供更加满意的信息服务.

另外，在本实施方式下，便携式终端 100 利用测位装置 46 测出当前的位置，根据所测得的位置生成便携式终端位置数据，向数据输出控制终端 300 输送包含所生成的便携式终端位置数据的数据打印请求.

因此，由于以便携式终端 100 的位置为基准在距离或时间意义上认为是最近的打印装置 PR 上打印与数据打印请求相关的数据，所以与以往相比，用户便于接收所提供的输出数据，可以很方便地从因特网 400 上获取详细信息. 而且，由于在便携式终端 100 上生成便携式终端位置数据，所以与在数据输出控制终端 300 上生成便携式终端位置数据相比，可以减轻数据输出控制终端 300 上的处理负荷. 特别在从多个便携式终端 100 同时访问的情况下，处理负荷的减轻效果尤其明显，因而可以降低由于等待接收输出数据而造成的较大时间延迟. 因此，服务提供者可以向用户提供更令人满意的信息服务，同时可提供更舒适的打印环境的打印服务.

另外，对于本实施方式，数据格式转换用终端 $CS_1 \sim CS_1$ 根据因特网 400 的传送负荷或数据格式转换用终端 CS 的处理负荷选择一个或多个数据格式转换用终端 $CS_1 \sim CS_1$，以便采用所选择的数据格式转换用终端 CS 进行数据格式转换处理.

据此，采用因特网 400 传送负荷或处理负荷小的数据格式转换用终端 CS 进行数据格式转换处理，从而不论因特网 400 的传送负荷或数据格式转换用终端 CS 的处理负荷如何，都可使接受输出数据的提

供所需的时间接近常量。据此，服务提供者可以向用户提供打印环境更加优越的打印服务。

在上述的实施方式中，打印装置 PR 与权利要求 2 记载的输出终端相对应，存储装置 62 与权利要求 2 记载的存储装置相对应，步骤 S204 与权利要求 2 记载的选择装置相对应，步骤 S226 与权利要求 2 记载的输出装置相对应。

而且，在上述的实施方式中，测位装置 46 与权利要求 3 记载的测位装置对应，步骤 S106 与权利要求 3 记载的位置数据生成装置对应，步骤 S108 与权利要求 3 记载的数据输出请求输出装置对应。

另外，在上述实施方式中，数据输出控制终端 300 在结构上可基于在便携式终端 100 上生成的便携式终端位置数据搜索存储装置 62 的打印装置位置数据，但不限于此，其在结构上还可基于来自于便携式终端 100 连接的基站 200 的与便携式终端 100 的位置有关的位置数据生成便携式终端位置数据，并基于生成的便携式终端位置数据搜索存储装置 62 的打印装置位置数据。即使是如这样的结构亦可获得与上述实施方式相同的效果。

而且，在上述实施方式中，便携式终端 100 在结构上可用测位装置 46 测定当前地点的位置，并基于所测定的位置生成便携式终端位置数据，但不限于此，其在结构上亦可从连接到便携式终端 100 上的基站 200 获得与便携式终端 100 的位置有关的位置数据，并基于获取的位置数据生成便携式终端位置数据。即使如这样的结构亦可获得与上述实施方式相同的效果。

而且，在上述实施方式中，在结构上作为认为对便携式终端 100 的利用者接受输出数据的提供最佳的打印装置 PR，选择以便携式终端的位置为基准在距离或时间上认为最近的打印装置 PR、在由提供希望区域数据指定的区域上的打印装置 PR、与打印格式数据匹配的打印装置 PR、与打印规格数据匹配的打印装置 PR 及与打印装置识别数据一致的打印装置 PR，但不限于此，在结构上还可选择例如在考虑到打印装置 PR 的数据输出速度时，认为是可最早向用户提供输出数据的打印装置 PR 或提供输出数据价格最便宜的打印装置 PR。

根据前一结构，由于在认为可最早向用户提供输出数据的打印装置 PR 上打印与数据打印请求有关的数据，所以用户可接受满足其目的的输

出数据，并可更容易地获取因特网 400 上的详细信息。据此，服务提供者可以向用户提供更加满意的信息服务。

根据后一结构，由于在提供输出数据价格最便宜的打印装置 PR 上打印与数据打印请求有关的数据，所以用户可接受满足其目的的输出数据，并可更容易地获取因特网 400 上的详细信息。据此，服务提供者可以向用户提供更加满意的信息服务。

另外，在上述实施方式的结构中可设置打印数据的打印装置 PR_1 ~ PR_n，并在某个打印装置 PR 上打印与源于便携式终端 100 的数据打印请求有关的数据，但不限于此，其在结构上还可设置例如显示数据或作为语音等输出数据的输出装置，并在某一输出装置上输出与源于便携式终端 100 的数据输出请求有关的数据。

另外，在上述实施方式在结构上可用数据格式转换用终端 CS 生成预览数据，但不限于此，其在结构上还可在数据输出控制终端 300 上生成预览数据。

另外，在上述实施方式在结构上，数据格式转换用终端 CS_1 ~ CS_1 根据因特网 400 的传送负荷或数据格式转换用终端 CS 的处理负荷选择一个或多个数据格式转换用终端 CS_1 ~ CS_1，进而利用所选择的数据格式转换用终端 CS 进行数据格式转换处理，但不限于此，其在结构上还可用指定的数据格式转换用终端进行数据格式转换处理。

而且，在上述实施方式在结构上，可用指定的数据输出控制终端 300 进行图 4 和图 6 流程图所示的处理，但不限于此，其在结构上还可与数据格式转换用终端 CS_1 ~ CS_1 相同，设置多个数据输出控制用终端，并根据因特网 400 的传送负荷或数据输出控制用终端的处理负荷选择多个数据输出控制终端中的某一个，以所选择的数据输出控制用终端进行处理。

根据这样的结构，由于采用因特网 400 的传送负荷或处理负荷小的数据输出控制终端进行图 4 及图 6 的流程图所示的处理，所以无论因特网 400 的传送负荷或数据输出控制终端的处理负荷如何，到接受输出数据的提供为止所需的时间都接近为常数。据此，服务提供者可以向用户提供打印环境更加优越的打印服务。

而且，在上述实施方式中，还就本发明的数据输出控制装置及便携式终端在因特网 400 上的应用情况作了说明，但不限于此，它理所

当然地还可在除因特网 400 外的其它网络上应用。

另外，在上述实施方式中，以同一网络连接便携式终端 100、数据格式转换用终端 CS_1～CS_1、WWW 服务器 DS_1～DS_m、打印装置 PR_1～PR_n 及数据输出终端 300，但不限于此，其在结构上还可分别以不同网络对数据输出控制终端 300 与便携式终端 100、数据输出控制终端 300 与数据格式转换用终端 CS_1～CS_1、数据输出控制终端 300 与 WWW 服务器 DS_1～DS_m 以及数据输出控制终端 300 与打印装置 PR_1～PR_n 进行连接。

而且，在上述实施方式中，当实行图 4 及图 6 的流程图所示的处理时，对都执行预先存储在 ROM32、52 中的控制程序的情况进行了说明，但不限于此，还可从存储表示这些步骤的程序的存储媒体中把其程序读入 RMA34、54 中，以便执行。

这里，存储媒体是指诸如 RAM、ROM 等的半导体存储媒体、FD、HD 等的磁存储型存储媒体、CD、CDV、LD、DVD 等的光学读取方式存储媒体、MO 等的磁存储型/光学读取方式存储媒体，并且不论电子、磁、光学等的读取方法如何，只要是计算机可读取的存储媒体，就包括所有存储媒体。

而且，在上述实施方式中，对于提供下述服务的场合下应用了本发明的数据输出控制装置及便携式终端，即如图 2 所示，服务提供者根据源于用户的数据的打印请求由数据输出控制装置 300 从 WWW 服务器 DS_1～DS_m 之一获取与其数据打印请求有关的数据，并输出给打印装置 PR_1～PR_n 之一，但不限于此，只要不超出本发明范围，还可用于其它场合。

说 明 书 附 图

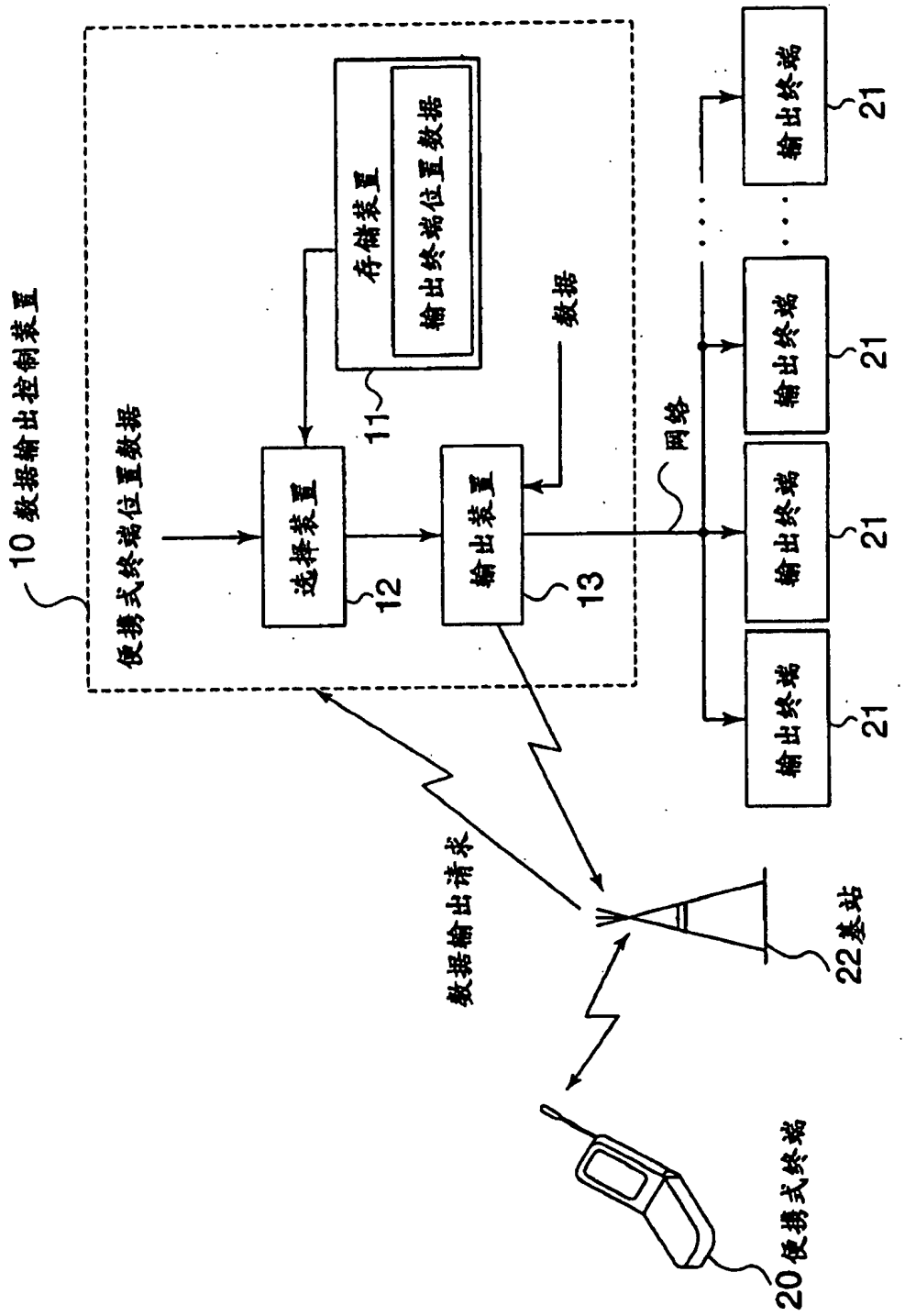

10 数据输出控制装置
便携式终端位置数据
选择装置
12
存储装置
输出终端位置数据
11
输出装置
13
数据
网络
输出终端
21
输出终端
21
输出终端
21
输出终端
21
数据输出请求
22基站
20便携式终端

图 1

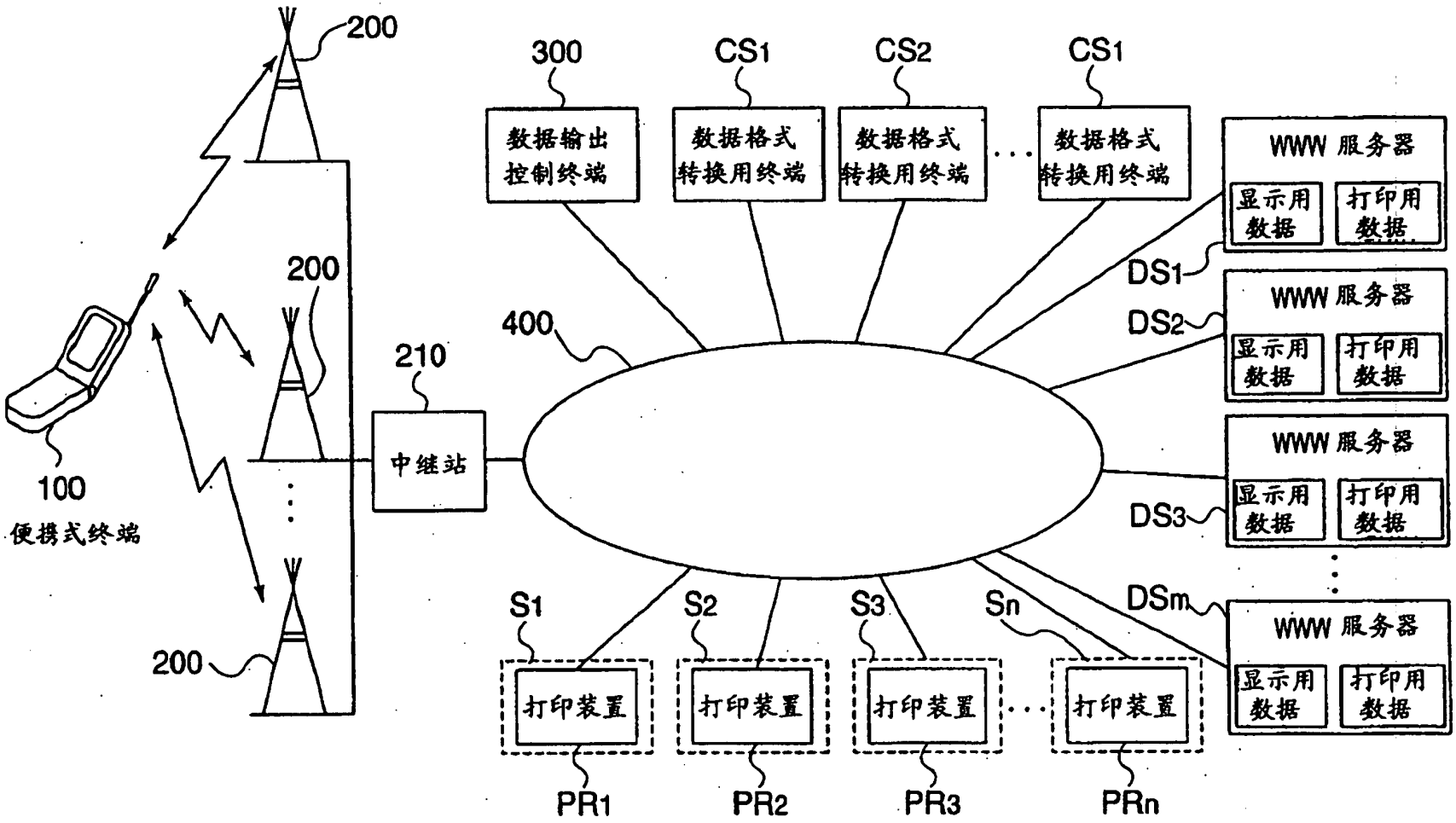

200
300
CS1
CS2
CS1
数据输出控制终端
数据格式转换用终端
数据格式转换用终端
数据格式转换用终端
WWW 服务器
显示用数据
打印用数据
DS1
DS2
DS3
DSm
200
400
210
中继站
100
便携式终端
S1
S2
S3
Sn
打印装置
PR1
PR2
PR3
PRn

图 2

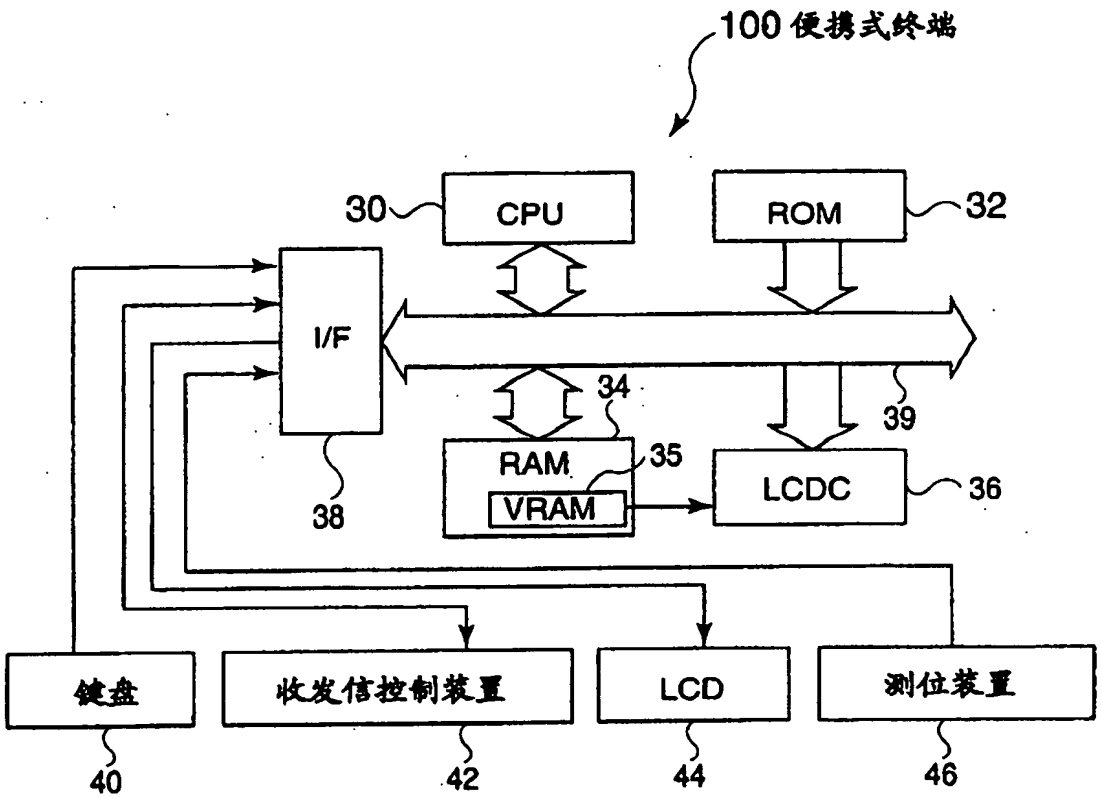

100 便携式终端
30
CPU
ROM
32
I/F
34
39
RAM
35
VRAM
LCDC
36
38
键盘
收发信控制装置
LCD
测位装置
40
42
44
46

图 3

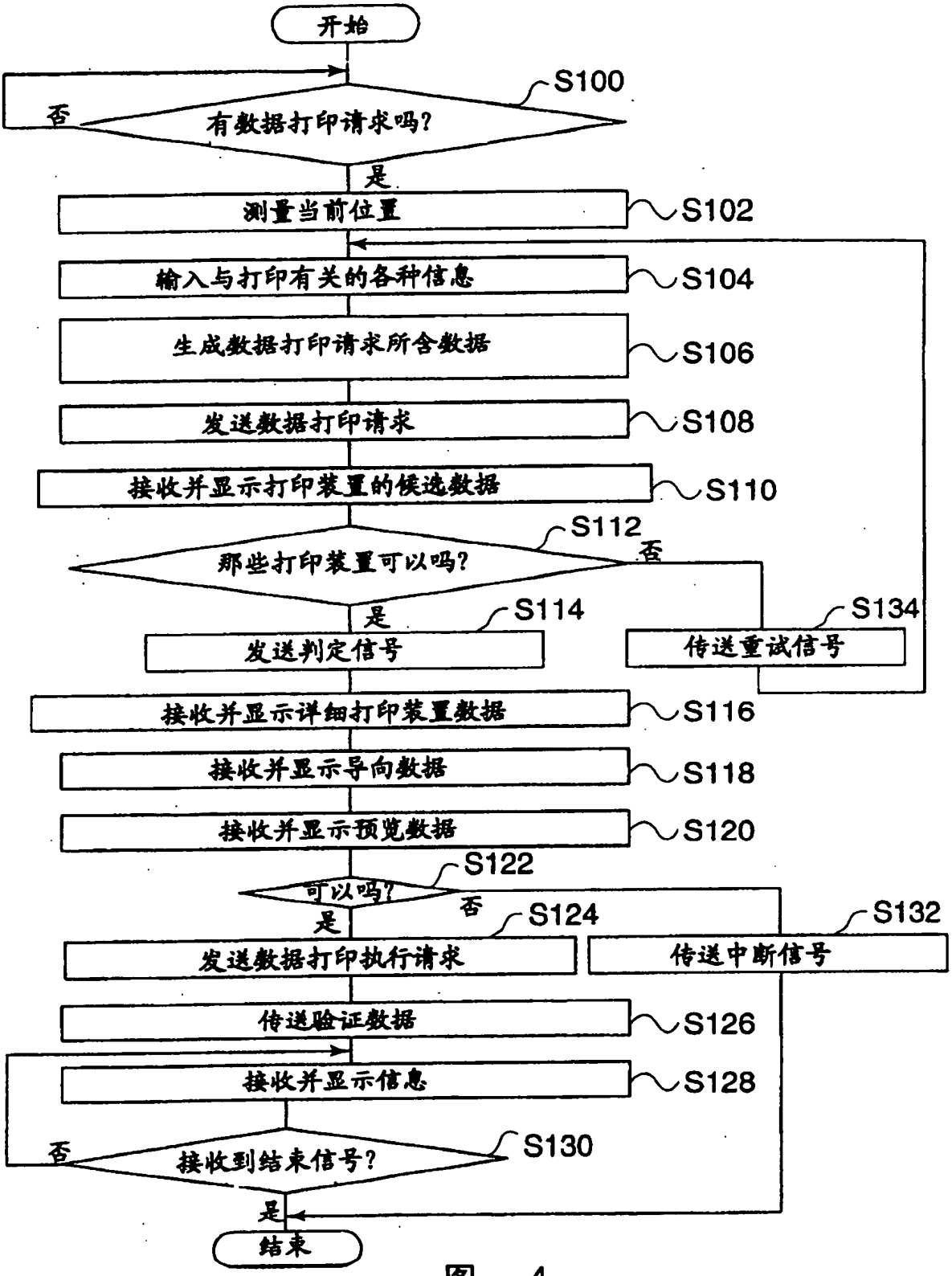

开始
S100
有数据打印请求吗?
否
是
测量当前位置
S102
输入与打印有关的各种信息
S104
生成数据打印请求所含数据
S106
发送数据打印请求
S108
接收并显示打印装置的候选数据
S110
S112
那些打印装置可以吗?
否
是
S114
发送判定信号
S134
传送重试信号
接收并显示详细打印装置数据
S116
接收并显示导向数据
S118
接收并显示预览数据
S120
S122
可以吗?
否
是
S124
发送数据打印执行请求
S132
传送中断信号
传送验证数据
S126
接收并显示信息
S128
S130
接收到结束信号?
否
是
结束

图 4

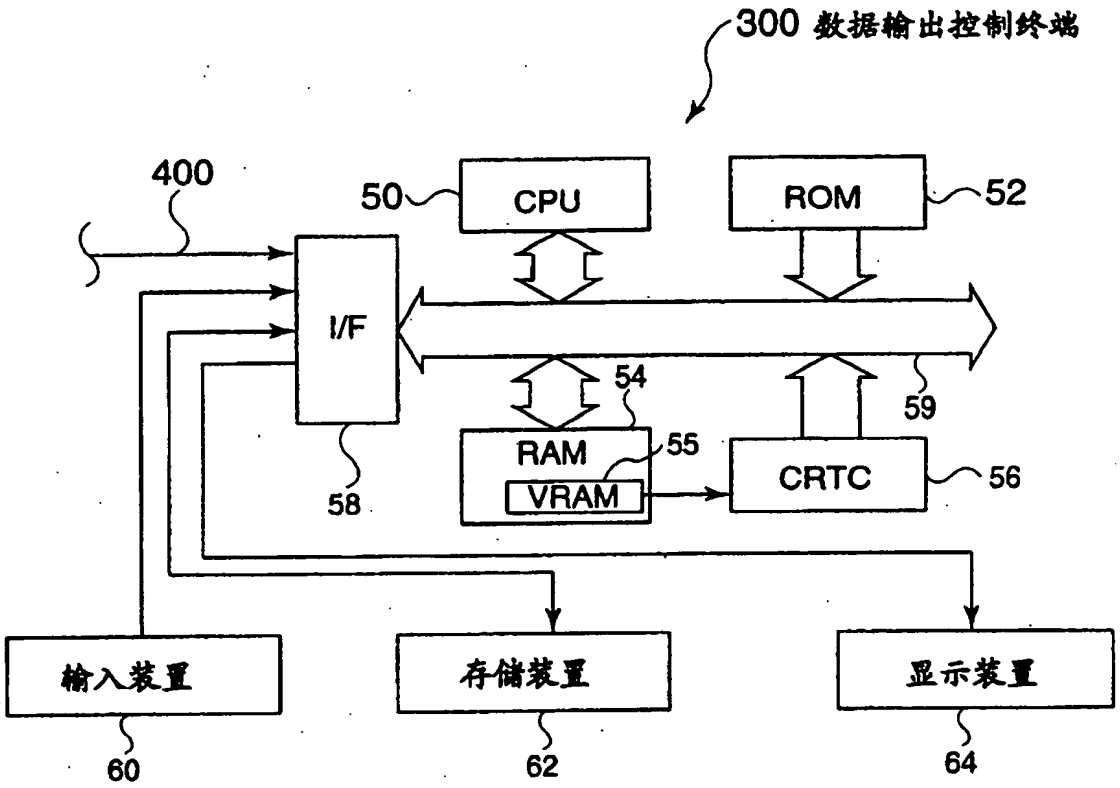

300 数据输出控制终端
400
50
CPU
ROM
52
I/F
54
59
RAM
55
VRAM
CRTC
56
58
输入装置
存储装置
显示装置
60
62
64

图 5

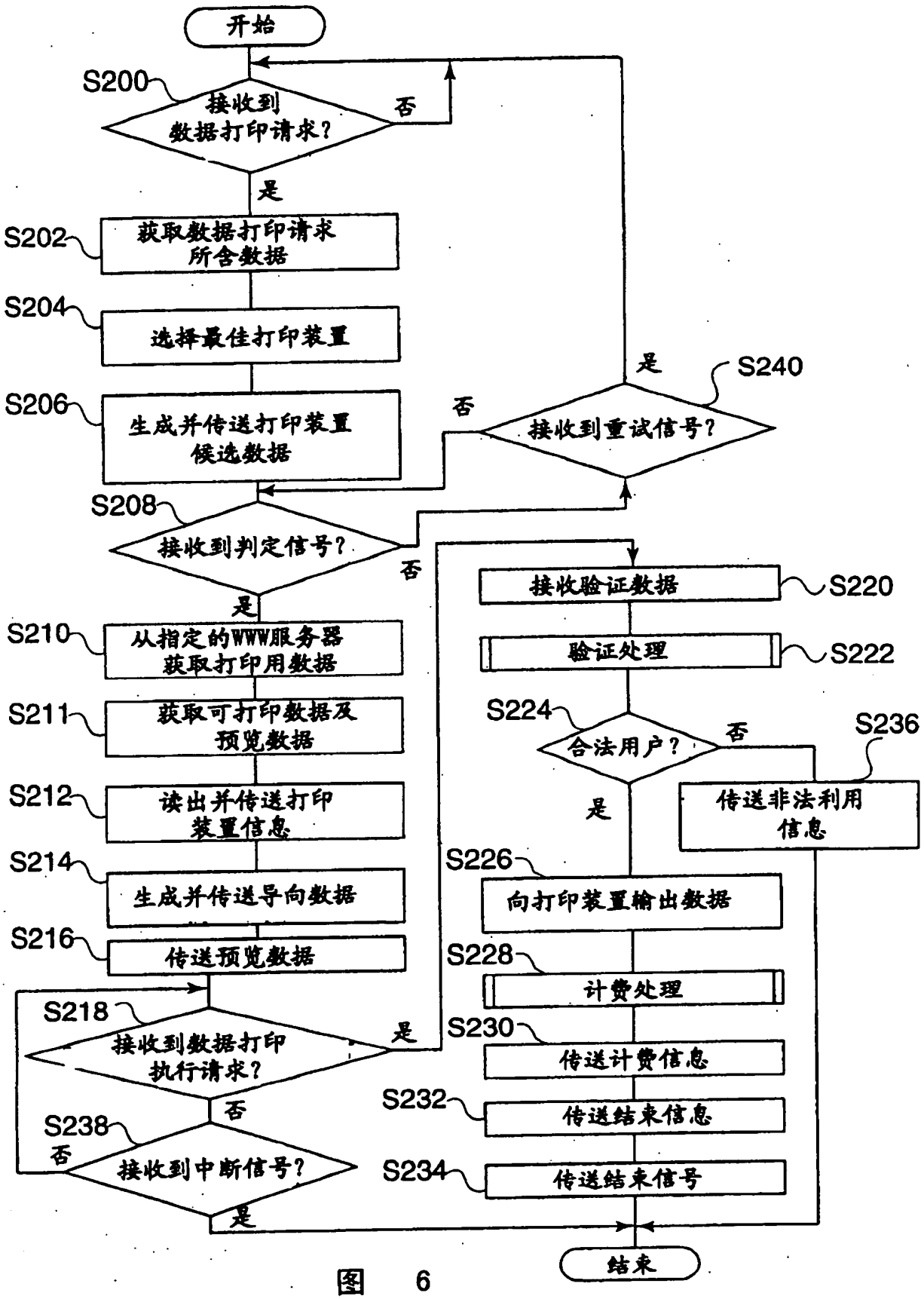

开始
S200
接收到数据打印请求?
否
是
S202
获取数据打印请求所含数据
S204
选择最佳打印装置
S206
生成并传送打印装置候选数据
S240
是
否
接收到重试信号?
S208
接收到判定信号?
否
是
S210
从指定的WWW服务器获取打印用数据
S211
获取可打印数据及预览数据
S212
读出并传送打印装置信息
S214
生成并传送导向数据
S216
传送预览数据
S218
接收到数据打印执行请求?
是
否
S238
否
接收到中断信号?
是
S220
接收验证数据
S222
验证处理
S224
合法用户?
否
S236
传送非法利用信息
是
S226
向打印装置输出数据
S228
计费处理
S230
传送计费信息
S232
传送结束信息
S234
传送结束信号
结束

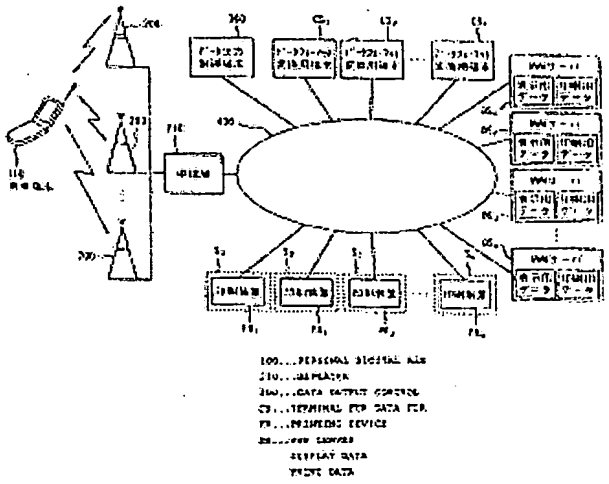
图 6

Original PCT application of the D2 (CN1364257A)

Patent number: WO0152046
Publication date: 2001-07-19
Applicant: SEIKO EPSON CORP (JP); AOKI MIKIO (JP); TANIGUCHI SHINYA (JP)

Abstract of **WO0152046**

The invention provides a data output control device and a personal digital assistant, which are adapted to easily obtain detailed information over a network. A data output control terminal (300) is connected through the Internet (400) in communication with personal digital assistants (100) owned by users, printing devices (PR1-PRn) distributed spatially, and WWW servers (DS1-DSm). The data output control terminal receives a printout request from a personal digital assistant (100), including the position data of a personal digital assistant generated by the personal digital assistant (100), searches the position data of printing devices in a storage (62) based on the position data of the personal digital assistant included in the printout request, selects a printing device (PR) considered to be nearest in distance and time from the position of the personal digital assistant (100), and outputs the data associated with the printout request to the selected printing device (PR).



Claims of corresponding document: **EP1172724**

1. A data output control device, Which communicably connects to a user-owned portable terminal which is portable and sends data output requests, and a plurality of output terminals situated at various locations for outputting data, via a network, so as to receive data output requests from said portable terminal, and output data relating to said data output requests to said output terminals, comprising:
storage means-for storing output terminal position data for specifying the output terminal installation location for each output terminal; selecting means for searching output terminal position data of said storage means based on the portable terminal position data for specifying

the position of said portable terminal, and selecting an output terminal which is considered to be closest either distance-wise or time-wise, with the position of said portable terminal as a reference, and output means for outputting data relating to said data output request to the output terminal selected by said selecting means;
wherein said portable terminal position data is generated based on position data relating to the position of said portable terminal from base stations to which said portable terminal connects.

2. A data output control device, which communicably connects to a user-owned portable terminal which is portable and sends data output requests, and a plurality of output terminals situated at various locations for outputting data, via a network, so as to receive data output requests from said portable terminal, and output data relating to said data output requests to said output terminals, comprising:
storage means for storing output terminal position data for specifying the output terminal installation location for each output terminal; selecting means for searching output terminal position data of said storage means based on the portable terminal position data for specifying the position of said portable terminal, and selecting an output terminal which is considered to be closest either distance-wise or time-wise, with the position of said portable terminal as a reference, and output means for outputting data relating to said data output request to the output terminal selected by said selecting means;
wherein, as portable terminal position data, that the data generated by said portable terminal is used.

3. A portable terminal which uses the data output control device according to Claim 2, comprising:
position measuring means for measuring the position of said terminal; position data generating means for generating said portable terminal position data based on the position measured with said position measuring means; and data output request originating means for sending said data output requests containing portable terminal position data generated by said position data generating means to said data output control device.

4. A portable terminal which uses the data output control device according to Claim 2, comprising:
position data obtaining means for obtaining position data relating to the position of said terminal from base stations to which said terminal connects; position data generating means for generating said portable terminal position data based on the position data obtained by said position data obtaining means; and data output request originating means for sending said data output requests containing the portable terminal position data generated by said position data generating means to said data output control device.

Description of corresponding document: **EP1172724**

Technical Field

[0001] The present invention relates to a device and terminal for communicably connecting a user-owned portable terminal and multiple printing devices situated at various localities via a network, receiving data printing requests from the portable terminal, and outputting data relating to the data printing requests to one of the printing devices, and particularly relates to a data output control device and portable terminal suitably used for readily obtaining detailed information on a network.

Background Art

[0002] In recent years, information on the Internet can be readily obtained at any location by using i-mode (Registered Trademark) provided by NTT DoCoMo, Inc., for example.

[0003] However, with such portable terminals, while information on the Internet can be readily obtained at any location, the display means are of a simple configuration due to considerations such as reduction in size of the portable terminal and reduction in power consumption and so forth, so the information displayed is quite simplified as compared to that displayed on a normal personal computer, so this has not come close to providing information which sufficiently satisfies the users.

[0004] Accordingly, a proposal can be made for an arrangement for obtaining detailed information while maintaining the small size and reduction in power consumption of the portable terminal, by combining a portable terminal with a printing device, so as to display general information on the portable terminal and print detailed information with the printing device. However, there are several problems which must be technically solved for such an arrangement combining a portable terminal with a printing device.

[0005] For example, a printing device is large and is not readily carried along with a portable terminal, so printing detailed information using a printing device set up in the home or office can be conceived. However, by using a fixed particular printing device, information is far from being readily obtainable at any location, so in order to realize this there is the need to either reduce the printing device to a portable level, or to arrange for arbitrary printer devices to be used. In the case of the former, it is extremely difficult to technologically realize this at the current state, so this is not realistic. In the case of the later, unique drivers are necessary for each printing device, so drivers for all printing devices to be used must be installed in the portable terminal, which also is not realistic.

[0006] Accordingly, the present invention has been made in light of such unsolved problems with the current art, and it is an object thereof to provide a data output control device and portable terminal suitably used for readily obtaining detailed information on a network.

Disclosure of Invention

[0007] In order to achieve the above objects, the data output control device according to Claims 1 and 2 of the present invention and the portable terminal according to Claims 3 and 4 can be proposed. The following is a description of the configuration of the data output control device according to Claim 1 and 2 of the present invention and the portable terminal according to Claim 3 and 4 with reference to Fig. 1. Fig. 1 is a conceptual diagram illustrating the configuration of the data output control device according to Claim 1 and 2 of the present invention and the portable terminal according to Claim 3 and 4.

[0008] As shown in Fig. 1, the data output control device 10 according to Claim 1 of the present invention which communicably connects to a user-owned portable terminal 20 which is portable and sends output requests for data, and a plurality of output terminals 21 situated at various locations for outputting data, via a network, so as to receive data output requests from the portable terminal 20, and output data relating to the data output requests to the output terminals 21, comprises: storage means 11 for storing output terminal position data for specifying the output terminal 21 installation location for each output terminal 21; selecting means 12 for searching output terminal position data of the storage means 11 based on the portable terminal position data for specifying the position of the portable terminal 20, and selecting an output terminal 21 which is considered to be closest either distance-wise or time-wise, with the position of the portable terminal 20 as a reference; and output means 13 for outputting data relating to the data output request to the output terminal 21 selected by the selecting means 12 ; wherein the portable terminal position data is generated based on position data relating to the position of the portable terminal 20 from base stations 22 to which the portable terminal 20 connects.

[0009] According to such a configuration, upon receiving a data output request from the portable terminal 20, portable terminal position data is generated based on the position data from the base stations 22, the output terminal position data of the storage means 11 is searched based on the generated portable terminal position data, the output terminal 21 which is considered to be closest either distance-wise or time-wise is selected by the selecting means 12 with the position of the portable terminal 20 as a reference, and the data relating to the data output request is output to the selected output terminal 21 by the output means 13. Then, the data is output by the output terminal 21.

[0010] Now, the selecting means 12 may be of any configuration so long as an output terminal 21 considered to be closest either distance-wise or time-wise is selected with the position of the portable terminal 20 as a reference; an output terminal 21 considered to be the closest either distance-wise or time-wise may be selected with the position of the portable terminal 20 as a reference, or multiple output terminals 21 considered to be closest either distance-wise or time-wise may be selected with the position of the portable terminal 20 as a reference. In the case of the latter, the selection is narrowed by some sort of means, e.g., by the user making specifications, to finally select one of the multiple output terminals 21. This holds true in the

following for the data output control device according to Claim 2.

[0011] Also, the output terminal 21 may be of any configuration so long as data is output, including for example display means for displaying data, audio output means for outputting data as audio or the like, or printing means for printing data. This holds true in the following for the data output control device 10 according to Claim 2.

[0012] Also, the portable terminal position data is generated based on the position data from the base stations 22, but more specifically, any portable terminal position date is acceptable, for example, as long as it is generated based on the position of the portable terminal 20 measured by the base stations 22.

[0013] Now, the data relating to the data output request may be, for example, received from the portable terminal 20, or may be obtained from somewhere else other than the data output control device 10 and portable terminal 20. In the case of the latter, more specifically, the following configuration can be given. That is, the data output control device 10 further comprises date obtaining means for communicably connecting via network to the data storing terminal for storing data and obtaining data relating to the data output requests from the data storing terminal, with the output means 13 arranged so as to output the data obtained by the obtaining means to the output terminal 21 selected by the selecting means 12. This holds true in the following for the data output control device 10 according to Claim 2.

[0014] According to such a configuration, upon receiving a data output request from the portable terminal 20, data relating to the data output request is obtained from the data storing terminal by the obtaining means, and the obtained data is output to the output terminal 21 selected by the selecting means 12, by the output means 13.

[0015] Further, as shown in Fig. 1, the data output control device 10 according to Claim 2 of the present invention which communicably connects to a user-owned-portable terminal 20 which is portable and sends output requests for data, and a plurality of output terminals 21 situated at various locations for outputting data, via a network, so as to receive data output requests from the portable terminal 20, and output data relating to the data output requests to the output terminals 21, comprises: storage means 11 for storing output terminal position data for specifying the output terminal 21 installation location for each output terminal 21; selecting means 12 for searching output terminal position data of the storage means 11 based on the portable terminal position data for specifying the position of the portable terminal 20, and selecting an output terminal 21 which is considered to be closest either distance-wise or time-wise, with the position of the portable terminal 20 as a reference; and output means 13 for outputting data relating to the data output request to the output terminal 21 selected by the selecting means 12; wherein, for portable terminal position data, that generated by the portable terminal 20 is used.

[0016] According to such a configuration, upon receiving a data output request from the portable terminal 20, the output terminal position data of the storage means 11 is searched

based on the portable terminal position data generated by the portable terminal 20, the output terminal 21 which is considered to be closest either distance-wise or time-wise, with the position of the portable terminal 20 as a reference, is selected, by the selecting means 12, and data relating to the data output request is output to the selected output terminal 21, by the output means 13. Then, the data is output by the output terminal 21.

[0017] Now, the portable terminal position data is generated by the portable terminal 20, may be generated by the portable terminal 20 in any manner, more specifically, based on, for example, the position of the portable terminal 20 measured by the portable terminal 20 or position data relating to the position of the portable terminal 20 obtained by the portable terminal 20 from base stations 22 to which the portable terminal 20 is connected.

[0018] On the other hand, as shown in Fig. 1, the portable terminal 20 according to Claim 3 of the present invention is a portable terminal which uses the data output control device 10 according to Claim 2, comprising: position measuring means for measuring the position of the terminal; position data generating means for generating the portable terminal position data based on the position measured with the position measuring means; and data output request originating means for sending the data output requests containing portable terminal position data generated by the position data generating means to the data output control device 10.

[0019] According to such a configuration, the position of the portable terminal 20 is measured by the position measuring means, portable terminal position data is generated by the position data generating means, based on the measured position, and a data output request containing the generated portable terminal position data is sent to the. data output control device 10 by the data output request originating means.

[0020] Now, the position measuring means may be of any configuration as long as the position of the portable terminal 20 is measured with it, and for example, it may be configured such that the position of the portable terminal 20 is measured using externally obtained information by GPS or the like, or internally-generated information by a gyroscope, an accelerometer or the like.

[0021] Further, as shown in Fig. 1, the portable terminal 20 according to Claim 4 of the present invention is a portable terminal which uses the data output control device 10 according to Claim 2, comprising: position data obtaining means for obtaining position data relating to the position of the terminal from base stations 22 to which the terminal connects; position data generating means for generating the portable terminal position data based on the position data obtained by the position data obtaining means; and data output request originating means for sending the data output requests containing portable terminal position data generated by the position data generating means to the data output control device 10.

[0022] According to such a configuration, position data is obtained from the base station 22 by the position measuring means, portable terminal position data is generated based on the obtained position data by the position data generating means, and a data output request

containing the generated portable terminal position data is sent to the data output control device 10, by the data output request originating means.

Brief Description of the Drawings

Fig. 1 is a conceptual diagram illustrating the configuration of the data output control device according to Claims 1 and 2 of the present invention and the portable terminal according to Claims 3 and 4.
Fig. 2 is a block diagram illustrating the configuration of a network system to which the data output control device and portable terminal according to the present invention are applied.
Fig. 3 is a block diagram illustrating the configuration of a portable terminal 100.
Fig. 4 is a flowchart illustrating data printing request processing.
Fig. 5 is a block diagram illustrating the configuration of a data output control terminal 300.
Fig. 6 is a flowchart illustrating data output control processing. Best Mode for Carrying Out the Invention

[0024] The following is a description of embodiments of the present invention, with reference to the drawings. Fig. 2 through Fig. 6 are diagrams illustrating an embodiment of a data output control device and portable terminal according to the present invention.

[0025] This embodiment is the data output control device and portable terminal according to the present invention applied to a service wherein a service provider, in accordance with printing requests for data from users, obtains data relating to the data printing request from one of WWW (World Wide Web) servers DS1 through DSm and outputs this to one of printing devices PR1 through PRn, with a data output control terminal 300 which communicably connects, as shown in Fig. 2, a portable terminal 100 such as a cellular phone or the like which a user owns, and printing devices PR1 through PRn each installed in a plurality of locally-situated shops S1 through Sn, via the Internet 400. Now, while only one portable terminal 100 is shown in order to facilitate understanding of the invention, in reality a plurality of different models of portable terminals 100 can be connected to the Internet 400.

[0026] First, the configuration of the network system to which the data output control device and portable terminal according to the present invention is applied will be described with reference to Fig. 2. Fig. 2 is a block diagram illustrating the configuration of the network system to which the data output control device and portable terminal according. to the present invention are applied.

[0027] As shown in Fig. 2, connected to the Internet 400 are a relay station 210 for relaying communications between the portable terminal 100 and the Internet 400, printing devices PR1 through PRn for printing data, WWW servers DS1 through DSm for storing data, a data output

control terminal 300 for obtaining data relating to a data printing request from one of the WWW servers DS1 through DSm and outputting to one of the printing devices PR1 through PRn, and data format converting terminals CS1 through CS1 for converting the data obtained by the data output control terminal 300 into data which can be printed by the printing devices PR1 through PRn.

[0028] Multiple base stations 200 which perform wireless communication with the portable terminal 100 are connected to the relay station 210, so in the event that the portable terminal 100 is to connect to the Internet 400, the relay station 210 serves as a terminal on the Internet 400 instead of the portable terminal 100, transmitting data received from the portable terminal 100 via a base station 200 to a target terminal via the Internet 400, and also transmitting data of the target terminal on the Internet 400 to the portable terminal 100 via the base station 200. The portable terminal 100 simultaneously communicates with at least three base stations 200, the relay station 210 measures the time differences between the time when the airwave is sent from the portable terminal 100 and the time it reaches each base station 200 and measures the position of the portable terminal 100 based on the each measured time difference.

[0029] The WWW servers DS1 through DSm are configured of a storing unit for storing display data for displaying with the portable terminal 100 and printing data for printing with the printing devices PR1 through PRn corresponding to the display data, and a request processing unit for transmitting data in the storing unit to terminals such as the relay station 210 and data output control terminal 300 connected to the Internet 400 according to the requests from the terminals.

[0030] The request processing unit transmits display data or printing data in the storage unit in the event that there is a data transmitting request from an external terminal (portable terminal 100, data output control terminal 300, etc.),which is a function realized by an unshown CPU executing programs stored in an external storage device or the like. Whether to transmit display data or printing data is judged by the URL contained in the data transmission request. The storing unit stores, as printing data, various files such as text data, still image data, sound data, moving picture data such as MPEG, 3-D image data such as VRML, program data such as JAVA and so forth, and HTML (HyperText Markup Language) files.

[0031] The data format converting terminals CS1 through CS1 are terminals for executing data format conversion processing for converting the data obtained by the data output control terminal 300 into data which can be printed by the printing devices PR1 through PRn, so that one or multiple data format converting terminals CS1 through CS1 are selected according to the sending load of the Internet 400 or the processing load of the data format converting terminals CS, and data format conversion processing is executed with the selected data format converting terminal CS. Specifically, one or multiple data format converting terminals CS1 through CS1 necessary for the data format conversion processing are selected in order of smaller sending load of the Internet 400 or processing load of the data format converting terminal CS.

[0032] The data format converting terminal CS where the data format converting processing is

executed receives a data format conversion request and data to be converted from the data output control terminal 300, converts of the data obtained by the data output control terminal 300 that data of a predetermined format into data which can be printed by corresponding printing devices PR1 through PRn by data format conversion processing, and transmits the converted data to the data output control terminal 300.

[0033] For example, in the event that format conversion processing is being executed with the data format converting terminals CS1 through CS3, this would be carried out in the manner of the data format converting terminal CS1 converting data of a predetermined format A (e.g., HTML format) of the data obtained by the data output control terminal 300 into data which can be printed by the printing devices PR1 through PR5, the data format converting terminal CS2 converting data of a predetermined format B (e.g., JPEG format) of the data obtained by the data output control terminal 300 into data which can be printed by the printing devices PR6 through PR10, and the data format converting terminal CS3 converting data of a predetermined format C (e.g., WORD (Registered Trademark) document format) of the data obtained by the data output control terminal 300 into data which can be printed by the printing devices PR11 through PR15. In this case., the printing devices PR1 through PR5 apparently serve as devices for printing the data..of the predetermined data format A in a dedicated manner, the printing devices PR6 through PR10 as devices for printing the data of the predetermined data format B in a dedicated manner, and the printing devices PR11 through PR15 as devices for printing the data of the predetermined data format C in a dedicated manner.

[0034] Also, the data format converting terminal CS where data format conversion processing is to be executed converts data obtained by the data output control terminal 300, and also generates preview data displayable on the portable terminal 100 which is a conceptual image of what will be printed by the printing device PR of the data obtained by the data output control terminal 300, for each portable terminal 100 model according to the display capabilities thereof (number of lines that can be displayed, display resolution, etc.), and transmits the generated preview data to the data output control terminal 300.

[0035] Accordingly, the data output control terminal 300 transmits data obtained from the data format conversion request and WWW server DS to the data format converting terminal CS corresponding to the printing device PR to print data relating to the data printing request, and receives as a response thereto data which can be printed by the printing device PR at which printing is to be carried out, and preview data.

[0036] Next, the configuration of the portable terminal 100 will be described with reference to Fig. 3. Fig. 3 is a block diagram illustrating the configuration of the portable terminal 100.

[0037] As shown in Fig. 3, the portable terminal 100 is configured of a CPU 30 which controls computations and the entire system based on control programs, ROM 32 storing control programs for the CPU 30 and the like in predetermined areas beforehand, RAM 34 for storing the data read out from the ROM 32 and the like and computation results necessary in the computation processes of the CPU 30, a LCDC (Liquid Crystal Display Controller) 36 for

converting data stored in a specified area of the RAM 34 into image signals and outputting to an LCD (Liquid Crystal Display) 44, and an interface 38 serving as a medium for input and output of data from and to external devices, these being connected mutually and data-exchangeably by a bus 39 which is a signal line for transferring data.

[0038] Connected to the interface 38 as external devices are a key panel 40 serving as a human interface where data input can be made by multiple keys, a transmission/reception control device 42 for performing wireless communication with base stations 200, an LCD 44 for displaying images based on image signals, and a position measuring device 46 for measuring the current position.

[0039] The ROM 32 stores, in addition to control programs for the CPU 30, verification data for verifying whether or not the user for using the printing service provided by the data output control terminal 300 is a valid user.

[0040] The RAM 34 has, as a specified area, VRAM 35 for storing display data for displaying on the LCD 44, with the VRAM 35 being independently accessible by the CPU 30 and the LCDC 36.

[0041] The LCDC 36 sequentially reads out the display data stored in the VRAM 35 at a predetermined cycle from the leading address, converts the display data that has been read out into image signals, and outputs to the LCD 44.

[0042] The position measuring device 46 uses GPS (Global Positioning System) or the like, and receives time signals from orbit satellites transmitting time signals for the current time, so as to measure the current position based on the offset in time indicated by the time signals and the orbits of the orbit satellites.

[0043] The CPU 30 is made up of a micro-processing unit MPU and the like, for activating predetermined programs stored in predetermined areas of the ROM 32, and executing data printing-request processing shown in the flowchart in Fig. 4 following the programs. Fig. 4 is a flowchart. illustrating the data printing request processing.

[0044] The data printing request processing is a processing for requesting printing of data of a WWW server DS specified by the user by one of the printing devices PR1 through PRn, by issuing a data printing request to the data output control terminal 300, and in the event that this is executed at the CPU 30, the flow goes to step S100, as shown in Fig. 4.

[0045] In step S100, judgment is made regarding whether or not there has been a data printing request by input from the user with the key panel 40, and in the event that judgment is made that there has been a data printing request (Yes), the flow proceeds to step S102, the current position is measured by the position measuring device 46, the flow proceeds to step S104, and various information relating to printing is input from the key panel 40. The user inputs, as this various information relating to printing, for example, a URL which uniquely specifies the position

in the Internet 400 of the WWW server DS storing the printing data to be printed, the desired providing area which is a general place where the user desires to be provided with the output data, paper size, whether color or monochrome, printing specifications of the printing device PR such as printing precision or printing speed or the like, the data format of the printing data to be printed, and a printing device ID for identifying a printing device PR in the event of directly specifying a printing device PR. None of these input items are indispensable items, and are to selectively input according to the needs of the user. However, in the event that there is no particular specification for the URL of the WWW server DS, the URL of the WWW server DS which the user is currently viewing with the portable terminal 100 is automatically input.

[0046] Next, the flow proceeds-to step S106, and data to be contained in the data printing request is generated, based on the various information relating to printing that has been input. That is to say, the data to be contained in the data printing request is generated as portable terminal position data for specifying the current position measured in step S102 as a current position, as printing object storing position data indicating the URL of the WWW server DS, as desired providing area data indicating the desired providing area in the event that the desired providing area has been input, as printing specifications data indicating the printing specifications in the event that printing specifications for the printing device PR have been input, as printing format data indicating the data format in the event that the data format has been input, and as printing device identification data indicating the printing device ID in the event that the printing device ID of a printing device PR has been input.

[0047] Next, the flow proceeds to step S108, the data printing request is transmitted to the data output control terminal 300, the flow proceeds to step S110, printing device candidate data listing candidates for several printing devices PR considered to be optimal for the user to be provided with the output data is received as a response thereof from the data output control terminal 300, the listed printing device PR candidates are displayed on the LCD 44 based on the received printing device candidate data, and the flow proceeds to step S112.

[0048] In step S112, judgment is made regarding whether or not there is a printing device PR from which the user desires to be provided with the data output from the printing device PR candidates-displayed on the LCD 44, and in the event that judgment has been made that there is a printing device PR from which the user desires to be provided with the data output in the list of the printing device PR candidates displayed on the LCD 44 according to an input of a selected one thereof from the key panel 40 (Yes), the flow proceeds to step S114.

[0049] In step S114, a decision signal indicating that a printing device PR has been decided upon is transmitted to the data output control terminal 300, the flow proceeds to step S116, printing device information which is detailed information relating to the decided printing device PR (the location where the printing device PR is installed, printing specifications, etc.) is received from the data output control terminal 300 as a first response to the decision signal transmission, detailed information relating to the printing device PR is displayed on the LCD 44 based on the received printing device information, and the flow proceeds to step S118.

[0050] In step S118, guidance data indicating guidance information (route information, map information, etc.) for guiding the user from the location of the portable terminal 100 to the location where the decided printing device PR is installed is received from the data output control terminal 300 as a second response to the decision signal transmission, the guidance information is displayed on the LCD 44 based on the received guidance data, the flow proceeds to step S120, preview data is received from the data output control terminal 300 as a third response to the decision signal transmission, a conceptual image of the printing to be made by the decided printing device PR is displayed on the LCD 44 based on the received preview data, and the flow proceeds to step S122.

[0051] In step S122, judgment is made with the conceptual image displayed on the LCD 44 regarding whether or not the printing data to be printed is correct, and in the event that according to an input of a selection from the key panel 40 the conceptual image displayed on the LCD 44 is judged correct (Yes), the flow proceeds to step S124. At this time, in the event that the preview data is made up of multiple sets of data, a desired part of these can be specified in particular for printing.

[0052] In step S124, a data printing execution request is sent to the data output control terminal 300, the flow proceeds to step S126, verification data of the ROM 32 is sent to the data output control terminal 300, the flow proceeds to step S128, a message is received from the data output control terminal 300 as a response thereto, the received message is displayed on the LCD 44, the flow proceeds to step S130, judgment is made regarding whether or not an end signal indicating that printing of the data ended has been received from the data output control terminal 300, and in the event that judgement is made that an end signal has been received (Yes), the flow of processing ends, but in the event that judgment is made otherwise (No), step S128 is repeated until an end signal is received.

[0053] On the other hand, in step S122, in the event that according to an input of a selection from the key panel 40, the conceptual image displayed on the LCD 44 is judged incorrect (No), the flow proceeds to step S132, an interruption signal which is a request to interrupt printing of the data is transmitted to the data output control terminal 300, and the flow of processing ends.

[0054] On the other hand, in step S112, in the event that judgment is made that there is no printing device PR by which the user desires to be provided with output of data according to an input of a selection from the key panel 40 indicating that there is no printing device PR which the user desires among the candidates of the printing device PR displayed on the LCD 44 (No), the flow proceeds to step S134, a retry signal which is a signal for re-searching for printing devices PR considered to be optimal for the user to be provided with the output data is transmitted to the data output control terminal 300, and the flow proceeds to step S104.

[0055] On the other hand, in step S100, in the event that judgment is made that there has not been a data printing request from the user (No), the flow stands by at step S100 until there is a data printing request.

[0056] Next, the configuration of the data output control terminal 300 will be described with reference to Fig. 5. Fig. 5 is a block diagram illustrating the configuration of the data output control terminal 300.

[0057] The data output control terminal 300 is arranged so as to obtain data relating to the data printing request from the portable terminal 100, selecting one of the printing devices PR1 through PRn to print with, and output the obtained data to the selected printing device PR, and as shown in Fig. 5, the data output control terminal 300 is comprised of a CPU 50 which controls computations and the entire system based on control programs, ROM 52 storing the control programs and the like in predetermined areas beforehand, RAM 54 for storing the data read out from the ROM 52 and the like and computation results necessary for the computation processes of the CPU 50, a CRTC 56 for converting data stored in a specified area of the RAM 54 into image signals and for outputting the image signals, and an interface 58 serving as a medium for input and output of data from and to external devices, these being connected mutually and data-exchangeably by a bus 59 which is a signal line for transferring data.

[0058] Connected to the interface 58 as external devices are a input device 60 comprising a keyboard or mouse or the like serving as a human interface where data input can be made, a storage device 62 for storing data and tables and the like as files, a display device 64 for displaying images based on image signals, and a signal line for connecting to the Internet 400.

[0059] The RAM 54 has, as a specified area, VRAM 55 for storing display data for displaying on the display device 64, with the VRAM 55 being independently accessible by tha CPU 50 and the CRTC 56.

[0060] The CRTC 56 sequentially reads out the display data stored in the VRAM 55 at a predetermined cycle from the leading address, converts the display data that has been read out into image signals, and outputs them to the display device 64.

[0061] The storage device 62 stores printing device information relating to printing devices PR necessary for selecting one of the printing devices PR1 through PRn to print the data with. The printing device information for each of the printing devices PR1 through PRn includes printing device position data for specifying the location where that printing device PR is installed, printing format data indicating the data format which the data format converting terminal CS corresponding to that printing device PR can convert (i.e., data formats which that printing device PR can print), printing specifications data indicating the printing specifications of that printing device PR, and printing device identification data indicating the printing device ID, these data having been registered.

[0062] The CPU 50 is made up of a micro-processing unit MPU and the like, for activating predetermined programs stored in predetermined areas of the ROM 52, and executing data output control processing shown in the flowchart in Fig. 6 following the programs. Fig. 6 is a flowchart illustrating the data output control processing.

[0063] The data output control processing consists of obtaining from the WWW server DS the printing data relating to the data printing request from the portable terminal 100, selecting several printing devices PR considered to be optimal for the user of the portable terminal 100 to be provided with the output data, and outputting the obtained printing data to the selected printing device PR, and in the event that this is executed at the CPU 50, the flow first goes to step S200, as shown in Fig. 6.

[0064] In step S200, judgment is made regarding whether or not 'a data printing request has been received from the portable terminal 100, and in the event that judgment is made that a data printing request has been received from the portable terminal 100 (Yes), the flow proceeds to step S202, obtains data contained in the received data printing request (containing at least portable terminal position data and printing object storing position data), proceeds to step S204, and selects a printing device PR considered to be optimal for the user of the portable terminal 100 to be provided with the output data.

[0065] Specifically, in this step S204, the printing device position data of the storage device 62 is searched based on the obtained portable terminal position data, and several printing devices PR considered to be closest distance-wise or time-wise, based on the position of the portable terminal 100, are selected. In the event that desired providing area data is contained in the data printing request, the printing device position data of the storage device 62 is searched based on the desired providing area data to select all printing devices PR in the area specified by the desired providing area data. In the event that printing specifications data is contained in the data printing request, the printing specifications data of the storage device 62 is searched based on the obtained printing specifications data to select all printing devices PR matching that printing specifications data.

[0066] Also, in the event that printing format data is contained in the data printing request, the printing format data of the storage device 62 is searched based on the obtained printing format data to select all printing devices PR matching that printing format data. In the event that printing device identification data is contained in the data printing request, the printing device identification data of the storage device 62 is searched based on the obtained printing device identification data to select the printing device PR matching that printing device identification data. In the event that a combination of such data is contained in the data printing request, the selection is narrowed based on each of the data. However, in the event that desired providing area data is contained, but the position specified by the portable terminal position data is not contained in the area specified by the desired providing area data, the selection is not narrowed by the portable terminal position data, and in the event that printing device identification data is contained, the selection is not narrowed by other data.

[0067] Next, in step S206, printing device candidate data listing the printing devices PR selected in step S202 is generated, the generated printing device candidate data is transmitted to the portable terminal 100, and the flow proceeds to step S208.

[0068] In step S208, judgment is made regarding whether or not decision signals have been

received from the portable terminal 100, and in the event that judgment is made that decision signals have been received (Yes), the flow proceeds to step S210, printing data is obtained from the WWW server DS specified by the URL of the obtained printing object storing position data, the flow proceeds to step S211, the obtained printing data is transmitted to a data format converting terminal CS capable of converting the printing data and corresponding to the decided printing device PR, data which can be printed by the decided printing device PR and preview data is obtained from the data format converting terminal CS as a response thereto, and the flow proceeds to step S212.

[0069] In step S212, printing device information regarding the printing device PR decided upon is read out from the storing device 62, the read printing device information is transmitted to the portable terminal 100, the flow proceeds to step S214, guidance data regarding the printing device PR decided upon is generated, the generated guidance data is transmitted to the portable terminal 100, the flow proceeds to step S216, the preview data is transmitted to the portable terminal 100, and the flow proceeds to step S218.

[0070] In step S218, judgment is made regarding whether or not a data printing execution request has been received from the portable terminal 100, and in the event that judgment is made that a data printing request has been received (Yes), the flow proceeds to step S220 and receives verification data from the portable terminal 100, the flow proceeds to step S222, verification processing is executed based on the received verification data for verifying whether or not the user of the portable terminal 100 is a valid user for using the printing service provided by the data output control terminal 300, and the flow proceeds to step S224.

[0071] In step S224, judgment is made regarding whether or not the user of the portable terminal 100 is a valid user based on a result of the verification processing performed in step S222, and in the event that judgment is made that the user is a valid user (Yes), the flow proceeds to step S226, the data which can be printed by the decided printing device PR is transmitted to that printing device PR, the flow proceeds to step S228, and billing processing for performing billing according to the results of use of the printing service provided by the data output control terminal 300 by the portable terminal 100 is executed.

[0072] In this step S228, specifically, the telephone bill of the portable terminal 100 (e.g., telephone bill per minute) is calculated, the service usage fees according to the usage results of the portable terminal 100 are calculated making reference to a fee calculating stipulation table defining the service usage fees as prices of the printing services provided for, the amount of printing data obtained, the number of sheets printed with the printing device PR, and the printing specifications of the printing device PR, for example, as usage results of the portable terminal 100, the calculated service usage fees are added to the telephone bill, and the added total amount is stored as an invoice amount for the user of the portable terminal 100.

[0073] Next, the flow proceeds to step S230, a billing message indicating the service usage fees calculated by the billing processing in step S228 is transmitted to the portable terminal 100, the flow proceeds to step S232, an end message indicating that printing of data has ended is

transmitted to the portable terminal 100, the flow proceeds to step S234, an end signal is transmitted to the portable terminal 100, and the flow of processing ends.

[0074] On the other hand, in the event that judgment is made in step S224 that the user of the portable terminal 100 is not a valid user (No), the flow proceeds to step S236, a message to the effect that the user is an invalid user is transmitted to the portable terminal 100, and the flow of processing ends.

[0075] On the other hand, in the event that judgment is made in step S218 that a data printing execution request has not been received from the portable terminal 100 (No), the flow proceeds to step S238, judgment is made regarding whether or not an interruption signal has been received from the portable terminal 100, and in the event that judgment is made that an interruption signal has been received (Yes), the flow of processing ends, but in the event that judgment. is made otherwise (No), the flow proceeds to step S218.

[0076] On the other hand, in the event that judgment is made in step S208 that a decision signal has not been received from the portable terminal 100 (No), the flow proceeds to step S240, judgment is made regarding whether or not a retry signal has been received from the portable terminal 100, and in the event that judgment is made that a retry signal has been received (Yes) the flow proceeds to step S200, but in the event that judgment is made otherwise (No), the flow proceeds to step S208.

[0077] On the other hand, in the event that judgment is made in step S200 that a data printing request has not been received from the portable terminal 100 (No), the flow stands by in step S200 until a data printing request is received.

[0078] Next, the operation of the above embodiment will be described.

[0079] First, in the event that a valid user for using the printing services provided by the data output control terminal 300 operates the portable terminal 100 which he/she has, and accesses, for example, a WWW server DS1, display data of the WWW server DS1 is displayed on the LCD 44. Description will be made regarding the example of a case where the user is to print detailed data of the data displayed on the LCD 44 at this time.

[0080] In order for the user to print the object data, first, a data printing request is input from the key panel 40.

[0081] Once the data printing request is input, the current position of the portable terminal 100 is measured by the CPU 30 with the position measuring device 46, through steps S100 and S102, and input requests for various information relating to the printing are displayed on the LCD 44. Now, if the user specifies the URL of the WWW server DS1 currently being viewed by inputting it as the various information relating to the printing, portable terminal position data and printing object storing position data are generated as data to be contained in the data printing request, based on the input various information relating to printing, through the steps S104 to S108, and

the data printing request is transmitted to the data output control terminal 300.

[0082] At the data output control terminal 300, upon receiving the data printing request, the CPU 50 obtains data contained in the received data printing request (the portable terminal position data and printing object storing position data) through the steps S200 to S204, the printing device position data of the storing device 62 is searched based on the obtained portable terminal position data, and several printing devices PR considered to be the closest distance-wise or time-wise with the position of the portable terminal 100 as a reference, are selected. At this time, saying that printing devices PR1 through PR5 are selected, printing device candidate data listing the printing devices PR1 through PR5 is generated through step S206, and the generated printing device candidate data is transmitted to the portable terminal 100.

[0083] At the portable terminal 100, upon receiving the printing device candidate data, the listed printing devices PR1 through PR5 are displayed on the LCD 44 based on the received printing device candidate data, through step S110. Now, in the event that the user inputs a selection of the printing device PR1 from the key panel 40, a decision signal indicating that the printing device PR1 has been decided is transmitted to the data output control terminal 300, through the steps S112 and S114.

[0084] At the data output control terminal 300, upon receiving the decision signal, printing data from the WWW server DS1 specified by the URL of the obtained printing object storing position data is obtained through the steps S208 to S211, the obtained printing data is transmitted to a data format converting terminal CS capable of converting the printing data and corresponding to the decided printing device PR1 (e.g., the data format converting terminal CS1), and data capable of being printed by the decided printing device PR1 and preview data are obtained from the data format converting terminal CS1 as a response thereto. Then, in steps S212 through 216, printing device information regarding the decided printing device PR1 is read out from the storing device 62, and transmitted to the portable terminal 100, guidance data regarding the decided printing device PR1 is generated, the generated guidance data is transmitted to the portable terminal 100, and preview data is transmitted to the portable terminal 100.

[0085] At the portable terminal 100, upon receiving the printing device information, guidance data, and preview data, the detailed information relating to the printing device PR is displayed on the LCD 44 based on the received printing device information, guidance information from the location of the portable terminal 100 to the location where the printing device PR1 is installed is displayed on the LCD 44 based on the received guidance data, and a conceptual image of the printing performed by the decided printing device PR1 is displayed on the LCD 44 based on the received preview data, through the steps S116 to S120. Now, in the event that the user inputs from the key panel 40. a selection indicating that the conceptual image displayed on the LCD 44 is correct as the printing data to be printed, the data printing execution request and verification data of the ROM 32 are transmitted to the data output control terminal 300 through the steps S122 to 126.

[0086] At the data output control terminal 300, upon receiving the data printing execution request and the verification data, verification processing is executed through the steps S218 to S222 based on the received verification data. Here, the user is a valid user for using the printing service provided by the data output control terminal 300, so the data which can be printed by the decided printing device PR1 is transmitted to the printing device PR1 through the steps S224 to S234, the billing processing is executed, and the billing message, end message, and end signal are transmitted to the portable terminal 100.

[0087] At the portable terminal 100, upon receiving the billing message, end message, and end signal, the billing message and end message are displayed on the LCD 44 again through steps S128 and 130. On the other hand, upon receiving data capable of being printed by the printing device PR1, printing is performed by the printing device PR1 based on the received data.

[0088] After the end message is displayed, the user goes to the shop S1 where the printing device PR1 is installed, following the guidance information displayed on the LCD 44, and receives the data printed by the printing device PR1. The service usage fees as the price of the printing services provided is added to the telephone bill of the portable terminal 100 and invoiced.

[0089] On the other hand, the service provider can receive the price of providing the service by adding the service usage fees as the price of the printing services provided to the telephone bill and invoicing the user.

[0090] Now, in the event that the user inputs as the various information relating to printing, a desired providing area which is a general area where the user desires to be provided with the output data, desired providing area data indicating the desired providing area is transmitted to the data output control terminal 300, at the data output control terminal 300 the printing device position data of the storage device 62 is searched based on the obtained desired providing area data, and all printing device PR in the area specified by the desired providing area data are selected.

[0091] For example, in the event that the user inputs "Shibuya" as the desired providing area, all printing devices PR installed around Shibuya are displayed on the LCD 44 of the portable terminal 100.

[0092] Also, in the event that the user inputs as the various information relating to printing, printing specifications for the printing device PR, printing specifications data indicating the printing specifications is transmitted to the data output control terminal 300, and at the data output control terminal 300, the printing specifications data of the storage device 62 is searched based on the obtained printing specifications data, and all printing devices PR matching the printing specifications data are selected.

[0093] For example, in the event that the user inputs "Color" as the printing specifications, all printing devices PR capable of printing data in color are displayed on the LCD 44 of the portable

terminal 100.

[0094] Also, in the event that the user inputs as the various information relating to printing, data format, printing format data indicating the data format is transmitted to the data output control terminal 300, and at the data output control terminal 300, the printing format data of the storage device 62 is searched based on the obtained printing format data, and all printing devices PR matching the printing format data are selected.

[0095] For example, in the event that the user inputs "HTML" as the data format, all printing devices PR corresponding to data format converting terminals CS capable of converting HTML format data are displayed on the LCD 44 of the portable terminal 100.

[0096] Also, in the event that the user inputs as the various information relating to printing, the printing device ID of the printing device PR for directly specifying the printing device PR, printing device identification data indicating that printing device ID is transmitted to the data output control terminal 300, and at the data output control terminal 300, the printing device identification data of the storage device 62 is searched based on the obtained printing device identification data, and the printing device PR matching the printing device identification data is selected.

[0097] For example, in the event that the user inputs "0001" as the printing device ID, the printing device PR with the printing device ID "0001" is displayed on the LCD 44 of the portable terminal 100. In the event that no printing device PR with a printing device ID "0001" exists, no printing device PR is displayed at all.

[0098] Also, in the event that the user inputs as the various information relating to printing, a combination of desired printing area, printing specifications, and data format, data indicating each is transmitted to the data output control terminal 300, and at the data output control terminal 300, the selection is narrowed down based on the multiple sets of obtained data, and all matching printing devices PR are selected.

[0099] For example, in the event that the user inputs "Shibuya", "Color", and "HTML" as the desired printing area, printing specifications, and data format, all printing devices PR that are situated around Shibuya and are capable of printing the data in color are displayed on the LCD 44 of the portable terminal 100, from among the printing devices PR corresponding to data format converting terminals CS capable of converting HTML format data.

[0100] Also, in the event that the user is not a valid user for using the printing service provided by the data output control terminal 300, at the time that the conceptual image is displayed on the LCD 44, inputting from the key panel 40 a selection indicating that the conceptual image displayed on the LCD 44 is correct as the printing data to be printed does not result in printing the object data by the printing device PR1.

[0101] Thus, with the present embodiment, the data output control terminal 300 receives a data

printing request containing the portable terminal position data generated by the portable terminal 100, searches printing device position data of the storage device 62 based on the portable terminal position data contained in the data printing request, select a printing device PR which is considered to be closest either distance-wise or time-wise with the position of the portable terminal 100 as a reference, and outputs data relating to the data printing request to the selected printing device PR.

[0102] Accordingly, data relating to the data printing request is printed at a printing device PR considered to be the closest distance-wise or time-wise with the position of the portable terminal 100 as a reference, so the user can receive the output data more readily than with conventional arrangements, and can obtain detailed information on the Internet 400 readily. Also, the portable terminal position data is generated with the portable terminal 100, so the processing load placed upon the data output control terminal 300 is reduced as compared to cases wherein the portable terminal position data is generated at the data output control terminal 300. Particularly, in cases where the data output control terminal 300 is simultaneously accessed by a great number of portable terminals 100, the effect of reducing the processing load is remarkable, so the possibility that the time required up to receiving the output data will be greatly delayed can be reduced. Accordingly, the service provider can provide even more satisfying information services to the user, and can provide printing services for a more comfortable printing environment.

[0103] Further, with the present embodiment, the data output control terminal 300 searches for printing device position data of the storage device 62 based on the desired providing area data contained in the data printing request, and selects printing devices PR in the area specified by the desired providing area data.

[0104] Accordingly, data relating to the data printing request is printed by a printing device PR in the desired providing area which is a general location where the user desires to be provided with the output data, so the user can receive the output data according to his/her object, and thus can receive detailed information on the Internet 400 even more readily. Accordingly, the service provider can provide even more satisfying information-services to the user.

[0105] Further, with the present embodiment, the data output control terminal 300 does not search for portable terminal position data in the event that a position specified by portable terminal position data does not exist in the area specified by the desired providing area data contained in the data printing request.

[0106] Accordingly, in the event that the user inputs a desired providing area, priority is given to searching with the desired providing area data over searching with the portable terminal position data, and data relating to the data printing request is printed by a printing device PR in the desired providing area, so the user can receive the output data with priority given to his/her object, and thus can receive detailed information on the Internet 400 even more readily. Accordingly, the service provider can provide even more satisfying information services to the user.

[0107] Further, with the present embodiment, the data output control terminal 300 searches for printing format data of the storage device 62 based on the printing format data contained in the data printing request, and selects printing devices PR matching the printing format data.

[0108] Accordingly, data relating to the data printing request is printed by a printing device PR capable of printing with the data format specified by the user, so the user can receive the output data according to his/her object, and thus can receive detailed information on the Internet 400 even more readily. Accordingly, the service provider can provide even more satisfying information services to the user.

[0109] Further, with the present embodiment, the data output control terminal 300 searches for printing specifications data of the storage device 62 based on the printing specifications data contained in the data printing request, and selects printing devices PR matching the printing specifications data.

[0110] Accordingly, data relating to the data printing request is printed by a printing device PR capable of printing with the printing specifications specified by the user, so the user can receive the output data according to his/her object, and thus can receive detailed information on the Internet 400 even more readily. Accordingly, the service provider can provide even more satisfying information services to the user.

[0111] Further, with the present embodiment, the data. output control terminal 300 searches for printing device identification data of the storage device 62 based on only the printing device identification data contained in the data printing request, and selects the printing device PR matching the printing device identification data.

[0112] Accordingly, data relating to the data printing request is printed by the printing device PR uniquely specified by the user, so the user can receive the output data according to his/her object, and thus can receive detailed information on the Internet 400 even more readily. Accordingly, the service provider can provide even more satisfying information services to the user.

[0113] Further, with the present embodiment, the data output control terminal 300 outputs printing device information corresponding to the selected printing device PR to the portable terminal 100.

[0114] Accordingly, notifying the user of information relating to the printing device PR which will provide the output data can prevent the user from mistakenly printing data. Accordingly, the service provider can provide even more satisfying information services to the user.

[0115] Further, with the present embodiment, the data output control terminal 300 obtains data relating to the data printing request from a WWW server DS.

[0116] Accordingly, at the time of printing detailed information, printing data and data printable by the printing device PR are processed by the data output control terminal 300, so increased memory for the portable terminal 100 is unnecessary, and the processing load placed on the portable terminal 100 is reduced. Also, there is no need to read the data into the portable terminal 100, so the communication time is reduced, and the amount of time required to receive the output data is reduced. Accordingly, the service provider can provide printing services for a comfortable printing environment to the user, regardless of the functions of the portable terminal 100.

[0117] Further, with the present embodiment, the data output control terminal 300 selects one of the multiple printing devices PR based on portable terminal position data for specifying the position of the portable terminal 100.

[0118] Accordingly, data is printed by a printing device PR which is selected according to the position of the portable terminal 100, so, for example, selecting a printing device PR considered to be the closest distance-wise or time-wise with the position of the portable terminal 100 as a reference would allow the user to receive the output data even more readily, and the user can obtain detailed information on the Internet 400 even more readily. Accordingly, the service provider can provide even more satisfying information services to the user.

[0119] Further, with the present embodiment, the data output control terminal 300 obtains data from a WWW server DS specified by a URL of printing object storing position data contained in the data printing request.

[0120] Thus, detailed information can be obtained from all WWW servers DS connected to the Internet 400. Accordingly, the service provider can provide even more satisfying information services to the user.

[0121] Further, with the present embodiment, the data output control terminal 300 obtains printing data from a WWW server DS as data relating to the data printing request.

[0122] Thus, general information is displayed on the portable terminal 100 and detailed information is printed at the printing device PR, so detailed information on the Internet 400 can be obtained with the portable terminal 100, while realizing comfortable display processing. Accordingly, the service provider can provide even more satisfying information services to the user, and can provide a more comfortable printing environment and printing services to the user.

[0123] Further, with the present embodiment, the data output control terminal 300 transmits.preview data generated with a data format converting terminal CS to the portable terminal 100, and upon receiving a data printing execution request from the portable terminal 100 as a response to the output of the preview data, outputs data relating to the data printing request to the printing device PR.

[0124] Thus, preview data is notified to the user before providing the output data, thereby

preventing the user mistakenly printing out data. Accordingly, the service provider can provide even more satisfying information services to the user.

[0125] Further, with the present embodiment, the data output control terminal 300 performs billing according to the results of the use by the portable terminal 100 of printing services provided by the data output control terminal 300.

[0126] Thus, the service usage fees can be clearly calculated as the price of printing service provided, and also service usage fees do not have to be calculated each time the user receives a printing service. Accordingly, the service provider can readily handle office work for settling service fees and further clarify service usage fees for the user, and thus provide even more satisfying information services to the user.

[0127] Further, with the present embodiment, the data output control terminal adds the service usage fees as the price of printing service provided to the telephone bill.

[0128] Accordingly, payment of the service usage fees becomes easier for the user, and the service provider can collect service usage fees easily and in a more sure manner and can further easily handle office work for settling service usage fees.

[0129] Further, with the present embodiment, the data output control terminal 300 outputs data converted by the data format converting terminal CS to the printing device PR.

[0130] Thus, even in the event that a new printing device PR is installed, all that is necessary is to change the settings of the data format converting terminal CS regarding that new printing device PR at the service provider side, and the user can use the new printing device PR without making any changes in the settings at the user side. Accordingly, setting work which accompanies installing new printing devices PR becomes easy for service providers, and service providers can further provide even more satisfying information services to the user.

[0131] Further, with the present embodiment, the data output control terminal 300 transmits guidance data indicating guidance information, for guiding the user from the position of the portable terminal 100 to the position where the decided printing device PR is installed, to the portable terminal 100.

[0132] Thus, the user can follow the guidance information to go to the position where the printing device PR is installed, and thus can obtain the output data in a relatively sure manner. Accordingly, the serviceprovider can provide even more satisfying information services to the user.

[0133] Further, with the present embodiment, the portable terminal 100 measures the current position with the position measuring device 46, generates portable terminal position data based on the measured position, and outputs a data printing request containing the generated portable terminal position data to the data output control terminal 300.

[0134] Accordingly, data relating to the data printing request is printed by a printing device PR considered to be the closest distance-wise or time-wise with the position of the portable terminal 100 as a reference, so the user can receive the output data more readily than with conventional arrangements, and can obtain detailed information on the Internet 400 readily. Also, the portable terminal position data is generated with the portable terminal 100, so the processing load placed upon the data output control terminal 300 is reduced as compared to cases wherein the portable terminal position data is generated at the data output control terminal 300. Particularly, in cases where the data output control terminal 300 is simultaneously accessed by a great number of portable terminals 100, the effect of reducing the processing load is remarkable, so the possibility that the time required up to receiving the output data will be greatly delayed can be reduced. Accordingly, the service provider can provide even more satisfying information services to the user, and can provide printing services for a more comfortable printing environment.

[0135] Further, with the present embodiment, the data format converting terminals CS1 through CS1 select one or a plurality of the data format converting terminals CS1 through CS1 according to the sending load of the Internet 400 or the processing load of a data format converting terminal CS, so as to execute data format conversion processing with the selected data format converting terminal CS.

[0136] Accordingly, data format conversion processing is executed with data format converting terminals CS with a small sending load of the Internet 400 or the processing load, so the time required to receive the output data becomes approximately constant, regardless of the sending load of the Internet 400 or the processing load of the data format converting terminal CS. Accordingly, the service provider can provide printing services for a more comfortable printing environment to the user.

[0137] In the above embodiment, the printing device PR corresponds to the output terminal in Claim 2, the storage device 62 corresponds to the storing means in Claim 2, step S204 corresponds to the selecting means in Claim 2, and step S226 corresponds to the output means in Claim 2.

[0138] Also, in the above embodiment, the position measuring device 46 corresponds to the position measuring means in Claim 3, step S106 corresponds to the position data generating means in Claim 3, and step S108 corresponds to the data output request output means in Claim 3.

[0139] Now, with the above embodiment, the data output control terminal 300 is configured so as to search printing device position data of the storage device 62 based on portable terminal position data generated by the portable terminal 100, but the present invention is not restricted to this, and may be configured so as to generate portable terminal position data based on position data relating to the position of the portable terminal 100 from base stations 200 to which the portable terminal 100 is connected, and search printing device position data of the

storage device 62 based on the generated portable terminal position data. Advantages the same as those of the above embodiment can be obtained with such a configuration, as well.

[0140] Also, with the above embodiment, the portable terminal 100 is configured so as measure its current position with the position measuring device 46, and generate portable terminal position data based on the measured position, but the present invention is not restricted to this, and may be configured so as to obtain position data relating to the position of the portable terminal 100 from base stations 200 to which the portable terminal 100 is connected, and generate portable terminal position data based on the obtained position data. Advantages the same as those of the above embodiment can be obtained with such a configuration, as well.

[0141] Also, the above embodiment is configured such that a printing device PR which is considered to be the closest distance-wise or time-wise with the position of the portable terminal 100 as a reference, a printing device PR in an area specified by desired providing area data, a printing device PR matching printing format data, a printing device PR matching printing specifications data, or a printing device PR matching printing device identification data is selected as a printing device PR considered to be optimal for the user of the portable terminal 100 to receive output data, but the present invention is not restricted to this, and further, it may be configured such that, for example, a printing device PR which is considered to be able to provide the user with the output data fastest, taking into consideration the data output speed of the printing device PR, or a printing device PR with the most inexpensive price for providing the output data, is selected.

[0142] According to the former configuration, data relating to the data printing request is printed by a printing device PR which is considered to be able to provide the user with the output data fastest, so the user can receive output data meeting his/her object, and can obtain detailed information on the Internet 400 even more readily. Accordingly, the service provider can provide even more satisfying information services to the user.

[0143] According to the latter configuration, data relating to the data printing request is printed by a printing device PR with the most inexpensive price for providing the output data, so the user can receive output data meeting his-her object, and can obtain detailed information on the Internet 400 even more readily. Accordingly, the service provider can provide even more satisfying information services to the user.

[0144] Also, the above embodiment is configured such that printing devices PR1 through PRn for printing data are provided, and data relating to data printing requests from a portable terminal 100 are printed by one of the printing devices PR, but the present invention is not restricted to this, and such a configuration may be made where, for example, an output device for displaying data or for outputting data as audio is provided, and data relating to the data output request from the portable terminal 100 is output at any of such output devices.

[0145] Also, the above embodiment is configured so as to generate preview data with a data format converting terminal CS, but the present invention is not restricted to this, and may be

configured so as to generate preview data at the data output control terminal 300.

[0146] Also, the above embodiment is configured such that the data format converting terminals CS1 through CS1 select one or a plurality of the data format converting terminals CS1 through CS1 according to the sending load of the Internet 400 or the processing load of a data format converting terminal CS, so as to execute data format conversion processing with the selected data format converting terminal CS, but the present invention is not restricted to this, and may be configured so as to execute data format conversion processing with a specified data format converting terminal.

[0147] Also, the above embodiment is configured so as to execute the processing shown in the flowcharts in Fig. 4 and Fig. 6 with a specified data output control terminal 300, but the present invention is not restricted to this, and may be configured such that, seen in the data format converting terminals CS1 through CS1, multiple data output control terminals are provided, and one of the multiple data output control terminals is selected according to the sending load of the Internet 400 or the processing load of the data output control terminals to curry out the processing.

[0148] According to such a configuration, the processing shown in the flowcharts in Fig. 4 and Fig. 6 is executed with a data output control terminal with a small sending load of the Internet 400 or the processing load, so the time required to receive the output data becomes approximately constant, regardless of the sending load of the Internet 400 or the processing load of the data output control terminal. Accordingly, the service provider can provide printing services for a more comfortable printing environment to the user.

[0149] Also, the above embodiment has been described with regard to a case of applying the data output control device and portable terminal according to the present invention to the Internet 400, but the present invention is not restricted to this, and as a matter of course can be applied to networks other than the Internet 400.

[0150] Also, the above embodiment has been described with regard to an arrangement where the portable terminal 100, data format converting terminals CS1 through CS1, WWW servers DS1 through DSm, printing devices PR1 through PRn, and data output control terminal 300 are connected via the same network, but the present invention is not restricted to this, and an arrangement may be made wherein the data output control terminal 300 and the portable terminal 100, the data output control terminal 300 and the data format converting terminals CS1 through CS1, the data output control terminal 300 and the WWW servers DS1 through DSm, and the data output control terminal 300 and the printing devices PR1 through PRn, are each connected via different networks.

[0151] Also, the above embodiment has been described with regard to an arrangement wherein the processing shown in the flowcharts in Fig. 4 and Fig. 6 is executed by executing control programs stored beforehand in the ROMs 32 and 52, but the present invention is not restricted to this, and may read programs from a storage medium storing programs indicating these

procedures into the RAMs 34 and 54, to execute.

[0152] Now, a storage medium is a semiconductor storage medium such as RAM or ROM, a magnetic storage type storage medium such as an FD or HD, an optical reading type storage medium such as a CD, CDV, LD, or DVD, or a magnetic storage type/optical reading type storage medium such as an MO, and includes any storage media as long as the storage medium is computer-readable, regardless of the reading method, whether electric, magnetic, optic, or so forth.

[0153] Also, in the above embodiment, the data output control device and portable terminal according to the present invention are applied to a case of providing a service where, as shown in Fig. 2, a service provider obtains data relating to a data printing request from one of WWW servers DS1 through DSm according to the data printing request from a user, with a data output control device 300 to output from one of printing devices PR1 through PRn, but the present invention is not restricted to this, and is applicable to other cases without departing from the scope of the present invention.